THE

SOUTHERN AGRICULTURIST.

JULY, 1837.

PART I.

ORIGINAL COMMUNICATIONS.

On Manures.

Barnwell, June, 1837.

Mr. Editor,—In this District, where the soil is not very rich, the planter *must* turn his attention to making manure, or abandon the soil. Already has the climate been changed, by the inconsiderate custom of clearing lands every year; for it has become sicklier, colder, and therefore less congenial to the cotton culture. The soil is light and easily worked. The materials for making manure are in abundance. And why should we not avail ourselves of these advantages? Not one planter or farmer in ten, thinks of manuring at all. While one will be deriving fine crops from manuring, his next-door neighbor will not deign to inquire into the cause. Even those who turn their attention to manure, do not understand the plainest chemical elements by which they are to be regulated in its production. Because it may be beneficial to manure with cotton-seed on top, a planter will use cow-pens and stable manure in the same way,—as if the sun would not extract much of the strength of the manure, before it could be covered with the plough. Cotton-seed can be used on top; because, before it ferments, and before the sun can extract its alimentary properties, it is covered in the working of corn. I only mention this to show, that, our planters, by not *thinking* for themselves, are frequently inconsistent. There is my neighbor, Squire Snooks, who, the moment his manure arrives in

the field, covers it with dirt, and yet he manures his corn with it, on top.

The best planters up here adopt this plan of making manure:

1. The stables are filled with oak-leaves, rotten wood (oak best), pine-trash, heaped in the woods for at least six months before used, all kinds of trash, gum-pond mud, and sometimes clay, well broken up. This is taken out of the stables every two months, if possible, during a rain, heaped and covered with clay or sand; if not during a rain, pour upon the heap, before covering it, a sufficient quantity of water to assist fermentation. Even while the mass is in the stable, a little water, occasionally sprinkled, with the use of the grubbing-hoe at least once a week, will have a good effect. By grubbing with the hoe, the animal is effectually combined with the vegetable manure, and lumps of clay, or rotten wood, are pulverized.

2. The poultry houses and yards are cleaned once a month, and the yield therefrom, thrown into the stable.

3. All the Pride of India berries are raked, and thrown into the stable.

4. There is a pen, six feet square, and six feet deep, below the surface of the earth, filled with leaves, and covered, into which the cook and washer throw their slops and suds. This is emptied at the proper time, heaped, and covered with trash, &c.

5. Hog-pens are made, six feet square, and six feet below the surface of the earth, filled with leaves, and protected from the rain. The floor is made of rails, through the intervals of which the animal matter of the hogs is dropped. On the floor is a covering of pine-trash, for beds, which the sharp feet of the hogs will, in a short time, cut into fine pieces. The hogs are either penned here the whole year, or sleep in them every night, or, at all events, are put up at least one month to fatten, for bacon. Manure thus made is equal to cotton-seed.

6. Each negro is allowed to keep one or two hogs, on condition, that they are penned, as above stated. Hogs fatten best on wooden floors; and though raw cotton-seed will kill them, they fatten on it when boiled with the offals of the garden and fields. They do not like cold or rain, and, in the end, it would be decidedly cheaper to pen them all the year, except when they are allowed to

run the pea, potato, and slip fields. In the way I have described, they will make more manure than the cotton seed they eat. Besides, there is nothing safer than to have our hogs always in sight.

7. Cattle pens. The manure made in these pens is always indifferent, unless they be covered. In this particular, our planters up here, labor under a great mistake. Their plan is this: Leaves and trash, thrown into a pen, are trampled on by cattle, exposed to the weather; and, by the time the mass is heaped for fermentation, the best part of its manuring qualities has evaporated. On the other hand, when in stalls, the leaves are not only trampled, but they absorb the animal matter, and retain it until the manure is used. A cow, when stalled, will make four times the manure of a horse, in a year. Its dung is more susceptible of combination with vegetable matter; and, for the same reason, it is rendered quickly inert, by the action of the sun. I have tried the difference between dried and fresh cow-dung, under corn. The former had no effect; while the latter forced the corn very much. Cow-pens should be covered, and the cattle turned in every night. However, after all, the most profitable plan is to stable-feed milch cows and oxen; in this district, where we are compelled to feed cattle, one half of the year, they should be fed with boiled cotton-seed. That cotton-seed, for corn, is superior to any manure we use, cannot be doubted; but, at the same time, when the improvement of cattle is considered, the increase of their milk and butter, their protection from thieves, and the undoubted fact, that they can be made to produce, in six months, four times more efficient manure than the cotton-seed they consume, I do not hesitate to contend, that, the better policy would be, to stable-feed them on boiled cotton-seed, for six months in the year, or during the winter season. Any cow can be taught to eat cotton-seed, by adding a little salt. A stall filled with leaves can be emptied every two months. The cow drops more than the horse, and it tramples more effectually—its hoofs being sharp and wide. Another consideration is this: with cow-pen manure thus made, land is enriched every time it is planted, and in this respect it is more valuable than cotton-seed. In short, to use cow-pen manure, raked from an uncovered pen, except for the undecomposed

vegetable matter in it, is always a useless task. In nine cases out of ten, it will fire the corn, even in a moderately wet season. On the contrary, *stable* manure never will; nor does any well fermented manure ever fire the plant. A gentleman in my parts has advanced one step towards this improvement. When the mass, in his unroofed pen, has been sufficiently trampled, he covers it with clay, and on this places another layer of leaves, and so on, alternating, until he has made the quantity of manure he requires. But even this gentleman is now engaged building a stable for his cows. He says, by experiment, 3 bushels of cotton-seed per week, will fatten a cow, and 2½ bushels, with shucks, are enough. 50 bushels of seed, from two bales of short cotton, would enable him to stall-feed his cattle during the winter—the season when manure is made, and when cattle suffer most for range. So that, after deducting seed for planting from every 50 bushels of cotton-seed, he calculates to stall-feed one cow. He further says, that he will not be able to stall-feed all his cattle, but that all those not supplied will be turned nightly into an open pen, filled with leaves, with which he will replenish the stalls whenever they may be emptied.

D.

Remarks, by the Editor.

It is with great pleasure, that we give publicity to the foregoing communication. In that portion of country whence it comes, the least possible attention seems to have been paid to manuring. Our correspondent, D., shows, very conclusively, that this should not be the case. He clearly points out the various sources, from which the planter, in Barnwell, might procure himself manures of the very best kind; and we hope, that due attention will be paid to the subject, by them. In travelling through that district, about two years since, we met with a very superior field of corn, upon the road. Upon inquiring of the proprietor of the same, why it was so much better than all the rest, he observed, that he had manured it as a "brag-field," and, at the same time, observed to us, that he expected to make from that field, more than any other

two on his plantation, This was a concession sufficient for us. We urged upon our friend to manure more the next year, and to plant less. He did so; and he is now at our elbow, and states the following as the result of our advice:

1. He attended the field with less expense of time and labor.

2. His corn, from having greater nourishment to sustain it, stood the reverses of the season better.

3. He made a larger crop, than when he planted twice as much corn.

Will our planters consider these facts. If they do, they will learn, for once in their lives, that there is such a thing as deriving some benefit from "Book-farming,"

The value of Irish Potatoes as Food for Cows.

May, 1837.

Mr. Editor,—In your January number, I read some hints about the raising and culture of Irish Potatoes. I must add to your own, my firm conviction, that there is no vegetable, which we can possibly cultivate, possessing so many advantages, as a food for our cattle.

In the *first* place, its yield is greater than almost any vegetable we can possibly cultivate. This season, I planted an acre in Irish Potatoes, after the plan laid down in my former communication. I am now digging them for my cows, and I do assure you, Mr. Editor, that, it causes in them a double yield of butter and milk. My plan of feeding my cows is, to boil the potatoes, with other vegetable matter,—for instance, the potato tops, turnip tops, &c. This mash I give out to my cows, which yield fifty per cent more milk by it, than if they were turned out upon the best pasture only.

In the *second* place, this crop is easily attended. All the working that the potatoes need, I give them, before my hands go out to their regular morning work. But for the manner of doing this, I must refer you to my former communication.

In the *third* place, potatoes are the earliest root crop, that we can well have. In our climate, the land may be prepared, and planted with the Irish potato, early in Febru-

ary. And if the land be well manured, or covered with litter, the young plants will sustain not the least injury from frost or cold. I am, however, no great advocate for planting too early; since several years' experience has convinced me, that potatoes put into the ground early in April, will mature as soon as those put in at an earlier period.

In the *fourth* place, corn may be planted among potatoes, with the greatest advantage; and thus a crop of corn and potatoes may be raised upon the same land, without one crop in the least injuring the other. Indeed, the potatoes shading the young corn, at an early period, will prevent its growth being retarded by cold weather; and the same working which will keep the potatoes clear of grass, will also benefit the corn. As the potatoes are dug in, the loose earth which is pulled down from their bed, may be hauled, with great advantage, around the corn. Last year, my corn, planted in this way, was decidedly the best I had in my whole field.

In the *fifth* and last place, you may replant the small potatoes after you have dug the larger ones; and these will yield an excellent crop for winter use. Whenever I plant corn among my potatoes, I make my potato rows five feet apart, and plant the corn in the alley of each row, at the distance of four feet from each other. In digging in my potatoes, in the spring, I place the small ones in the alley, between each hill of corn, and throw the earth from the old bed upon them, into the alley; so as to form, at the same time, a bed for the corn and young potatoes. The potatoes thus raised are excellent for winter use; and as a vegetable for the table, are equal in quality to the very best of the "Emerald Isle."

I am aware, Mr. Editor, that this communication is too late, to be of much benefit at the present season: but it may serve for future use; and may also give some hints about turning our small potatoes, which are usually thrown away, to some advantage.

Corn.

June, 1837.

As most planters are now hilling, or hauling up their corn, it will be well, perhaps, to remind them, that although they have not manured it before, it is not too late to do so. We are aware, that a want of time will prevent much being done at this period; but still, something might be done, and that something with the greatest benefit.

Every negro has in his house a large amount of ashes. Let each of them, as he goes to his work in the morning, collect a basket-full of this, and apply it to the corn he may have to work. One handful of ashes, applied around each hill of corn, will benefit it vastly. A small portion of soot, applied in the same way, will answer equally well.

Indeed, almost any kind of manure, applied around corn, at this season, will forward its growth. The editor of the "Farmer and Gardener," who speaks practically upon this subject, uses the following language:

"Those who live upon tide water, where the sea-weed washes ashore, have a certain resource, in that article, to insure a good yield of corn; and by taking a little trouble may add 25 per cent. to their product: in ploughing their corn the first time, let the furrow be turned from the stalks, on either side; let the cart follow the plough, with the sea-weed; put a shovel full of it around the stalks, in the furrow; then let the plough return the soil, covering up the sea-weed, and they may rest assured, the happiest results will crown their labors.

"Those who have not this resource, have an equal fertilizer in the mould and leaves from the woods, which, if applied in the same way, would act equally efficient. So also, would well rotted manure of any kind.

"But should there be any who are so situated, as not to be able to encounter this trouble, we would advise them to a less laborious course. Let them mix ten bushels of spent ashes with one of plaster, and cast a common sized kitchen ladleful on each hill, as soon as the corn is up.

If there should be any who may not be able to obtain the ashes, an ordinarily sized table-spoonful of plaster to

each hill, will act as a charm, if put around, and on the plants, when they first come up."

Upon our sea-coasts, there are few planters who cannot find thousands of cart-loads of sedge, or rotted marsh, for manuring. We know, that it will be urged as an objection, that, they cannot cart it through their fields at this time, when their crops are up; but then, may they not do a great deal, by having the marsh carried out by the negroes. We grant, they will do little in this way; but it is no reason, that because their whole field cannot be manured, that no part of it should receive aid. If only two acres can be manured in this way, our experience and word for it, the planter will have no cause to regret the little time he has spent in doing it.

Where the sedge, or other materials cannot be readily come at, we would highly recommend the application of *salt*. One table-spoonful applied to each hill, will advance the growth of the plants incredibly. We have applied it this year to our early corn, with the most indisputable success, and we are continuing its application to our late corn. We beg our planters to revolve this matter over in their minds. One dollar will purchase them salt enough to manure an acre of land; and we would be almost willing to enter into bond, that for every dollar thus expended, the planter will realize ten. Those who have been trying the effects of salt longer than we have, say, that it may be applied to corn, with success, until it tassels. Our experience teaches us, that its application, upon low lands, is more salutary than upon high, sandy lands; but it has proved equally successful upon both.

Rats.

Mr. Editor,—The destruction which rats make among poultry, has caused many a poulterer to abandon his business. I have many modes of destroying these troublesome vermin. I have attempted several modes myself; but, after all, find nothing so efficacions as keeping cats about my premises. A great deal might be done by poisoning rats: but art must be used, to make them take the poison. A good plan is, to bate them in the corn-

house every season before the new corn has been taken in. The food with which they are bated, should be changed from day to day, and this should be done at least one week before the poison is mixed with the food. When you find that they will readily consume the food which has been set for them, the poison should then be mixed and care taken that a different kind of food be put with the poison every day. If possible, the bate should be placed in different parts of the house, every time it is set. By this means, I have killed an incredible number of rats, and I have heard one of my neighbors say, that he has actually driven them off his plantation.

But as the mode of poisoning rats, is attended with some inconvenience and danger, I would suggest another mode. Perhaps the best plan of all is to "put a rogue to catch a rogue," or in other words, to have cats to catch the rats. Cut a hole in your corn house door large enough for a cat to enter. To induce them to do so, feed them in the corn house for a few days, and then leave them to themselves; in a short time, they will either kill or scare away all the rats from the premises.

Figs, Grapes, and Fig-eaters.

The insect which is commonly known by the name of the FIG-EATER, and which is the great enemy of our figs and grapes, is just beginning to make its appearance. Various methods have been devised for their destruction, but all of them attended with too much trouble to be generally resorted to. I have tried the following plan with success. It is the habit of this insect when rudely disturbed, to fall for several feet *directly downwards* and then to fly away. Availing myself of this habit, I make it a constant practice, as soon as the fig-eaters make their appearance on my figs and grapes, to proceed *every morning* with a basin half full of water, to examine my fig-trees and grape-arbors, and wherever these fig-eaters are found collected on a fig or bunch of grapes, holding the basin a few inches under them, I merely strike the twig to which they are attached, when they all fall into the water, and are thus destroyed. By the use of a step-

ladder, and a little care, very few escape; and in a few days, but a few stragglers are seen in my garden. The grapes and figs are thus preserved, and I believe if the plan here recommended, were generally resorted to, very little injury could be sustained from this now destructive insect. If any one will try the experiment, he will soon be convinced of its efficacy, and that it takes very little time and less trouble. When the fig-eaters have been thus destroyed, they are not lost but may be given to the poultry, and if *pounded* are very useful in fattening young ducks.

EXPERIMENT.

Columbia, June 17, 1837.

Mr. Editor.—I saw accidentally, a French periodical, "Journal de Connoissanies Usuelles and Pratiques, &c," a very interesting publication. One article in it particularly attracted my attention, and I translate it into English, to be inserted in your Southern Agriculturist, if you think it worthy of it.

Yours, respectfully,

N. HERBEMONT.

On the influence of Burnt Earth on the quantity of Spirits in Wine; by Mr. JULES PAGEZY.

Chemical experiments have proven that the quantity of alcohol furnished by wine, is always in proportion to the quantity of muscilage and saccharine matter, (mucoso sueré) contained in the juice of the grapes. The soil, climate, and the kind of grape, exercise, in this respect on wine, a considerable influence, which is, however, modified by the exposition, the age of the vine, or the manures it receives. It has been asserted that animal manures, by increasing the products, impair the quality of the wine, and diminish the ordinary quantity of saccharine matter in the must. Mineral manures, such as ashes, lime, &c., are too little used in our part of the country, (the South of France,) because their influence on the production of alcohol has not been proved. Here are too observations which might prove that their use may offer advantageous results in argilaceous soils, which

constitute a great part of the wine district in the South of France.

In 1831, I cleared, pared and burnt the edges of a vineyard, planted in the kind called "Pique-poule," of the age of from 10 to 12 years. The burnt earth was put during the winter, at the feet of the vines. The crop of wine in 1832, yielded 306 lbs. of alcohol per muid, of 90 veltes, about 680 litres. *(a)* Mr. Claparède, the elder, a distiller at Montpellier, bought it of me, taking this yield of spirits for the basis of the price, which was ten francs per muid more than the usual price of commerce. I was astonished at the great quantity of spirits which this wine contained, and I explained this fact by attributing it to the exposition of the vineyard, which is most favorable; but I had this year, to seek other causes of a result, more extraordinary than that which I have just stated.

In the vicinity of the vineyard I have spoken of, there was uncultivated land, that I cleared, pared and burnt. After having raised on it a crop of wheat, I planted this piece in a kind of vine called "Aremon." The vines were rooted plants. These vines grew most vigorously; and this year, 8 sétérées, (about 1 hectare, 60 ares) being 4 years old, and 20 sétérées (about 4 hectares) being 3 years old, produced about 36 muids of wine, without including about 4 muids of rotten grapes which had to be abandoned. The vines, 4 years old, produced more than 2 muids per sétérée of 20 ares, and those 3 years old about 1 muid per sétérée. *(b)* The vintage took place from the 21st to the 23d of September. Every body knows how the last year was unfavorable to the perfect maturity of the grapes. Therefore, seeing the considerable quantity of fruit produced by these young vines, I was convinced that the wine produced by it would be very weak. I cannot express what was my surprize, when I had obtained the full conviction, that notwithstanding this cause, and that no less powerful one of the atmospherical circumstances, the quantity of alcohol contained in the wine, was, on the contrary, very great. In fact it yielded per muid: the wine which had been one night only in the vat after the grapes had been crushed, 262 lbs. (French, about 294 lbs. English;) wine fermented in the vat, (the length of time not specified) 256 lbs. and that from the press, 235 lbs.

Mr. Chassefière, a distiller at Montpellier, bought this wine of me, which he distilled. Being still under the persuasion, that I could attribute this result only to the exposition of the vineyard, I submitted to the experiment some of the "Pique-poule," the crop of which had been gathered in the beginning of October, the produce of the vineyard, I have already noticed, and from six sétérées of plants 4 years old, placed in a soil which had not had the benefit of the paring and burning. This wine only yielded 240 lbs. of alcohol. The exposition was the same, the maturity of the grapes more perfect for the "Pique-poule," than for the "Aramon," which had been gathered earlier on account of the rot which had already affected a great portion of the grapes. The ages of the vines were the same, and yet the difference was 22 lbs. of spirits per muid in the wine made in the same manner. I then recollected the wine of the "Pique-poule," sold to Mr. Claparéde in 1832. On referring to my books, I found that the year which had preceeded this vintage, the vineyard had been manured with the burnt earth. I then found that the same cause had produced the same effect.

Experiments often repeated can alone give certainty to the facts that I advance, but they have appeared to me sufficiently important to claim the attention of our cultivators. Burnt earth gives the vines an uncommon vigor. Should not their use become more general, if we can acquire the certainty, that with the quantity of wine, the quantity of alcohol is also increased? I engage the proprietors of vineyards to make experiments to obtain the solution of this important question, and I promise to continue mine, and to impart the result, whatever it be, to the society. My most anxious desire being that of contributing to the discovery of the truth.

(Société d' Agriculture de l' Hérault.)

Notes by the Translator.

(a.) 306 lbs. French weight is about 344 lbs. English. The muid about 180 gallons, the velte about 2 gallons, and the litre about 1 quart. This, then, gives 344 lbs. of alcohol to 180 gallons of wine. This is only an approximation of the reduction of measures of France to the

English. I have not books at hand to enable me to get nearer.

(b.) The author of this article has somewhat mingled the new decimal weight and measures adopted in France, during the Revolution, with the measures of particular districts of the country, I cannot ascertain the meaning of sétérée, nor the exact contents of the muid he alludes to, as it is not the same all over France. This prevents our knowing the precise produce of the vineyards. The principal object, however, is obtained, of showing the advantageous effects of the burnt earth on the production of the vine. We have the less reason to doubt this effect, that it is well known that volcanic soils are celebrated for the strength and richness of the wines which they produce; and the adding of burnt earth to the natural soil, brings it in some small degree, to the condition of volcanic soils. This kind of amelioration, has also the great advantage over ordinary manures, that it introduces neither weeds nor grass in the fields improved by it. This article was thought the more interesting, that although given only for the benefit of the vine cultivator, it may also be as highly beneficial to almost all other kind of cultures. There is very little doubt that in many situations it would be highly beneficial to the cotton culture. The naming, particularly the cultivation of cotton here, offers me an opportunity to recommend to the perusal of cotton planters, a very excellent article on the subject of the rot in cotton, by Dr. Robert R. Harden. It is one of the most judicious selections in the Southern Agriculturist for the present month, page 305. Very little doubt can be entertained that Dr. Harden has discovered the true cause of the rot in cotton, and the remedy is most obvious. The agricultors of the Southern States are much indebted to the indefatigable and judicious exertions of this gentleman, not only for this, but for many other valuable communications, which have been noticed from his pen, for many years past.

A REPORT on the subject of the Epidemic generally denominated Asiatic Cholera, or Cholera Asphyxia, read before the St. Andrew's Agricultural and Police Society, at their anniversary, by appointment, and published by their request. By R. LEBBY, M. D.

The Committee appointed the 6th October, on the subject of the Epidemic which prevailed on this Island during the past season, beg leave respectfully to report, that duly impressed with the magnitude of the subject, they have given it that careful attention which its importance required.

We propose, 1st, to draw your attention to the course pursued by the disease, or a geographical outline of the epidemic. 2d. the supposed causes of the scourge, and will endeavor to prove, that it is not the usual Cholera Morbus that occurs here. 3d. the non-contagiousness of the disease will be substantiated; and lastly we will point out the best means to be adopted for its prevention, and non-propagation.

1. The epidemic which visited us during the last season, and for several years past throughout our country, usually supposed to be Asiatic Cholera, or Cholera Asphyxia, first made its appearance in Upper Hindostan, as early as 1762, when it destroyed 30,000 negroes, and 800 Europeans; there is no very authentic mention of its progresing or spreading elsewhere, at this period. In 1774, Dr. Paisley, in a letter from Madras, states, that there it was often epidemic among the blacks. M. Sonnerat in his travels in India, between 1774 and '81, observes that it prevailed on the Coromandel Coast, and assumed an epidemic and malignant character. Curtis and Giralestone speak of an unusual prevalence of the disease during 1781 and '82.

In April 1783, it appeared at Hurdwur, on the Ganges, a spot peculiarly sacred to the Hindoos, amongst a crowd of one million of persons assembled for the purpose of ablution in the Holy Stream, and it is supposed that 20,000 persons were cut off in 8 days.*

* See Cholera Magazine, July 1832.

The epidemic which has created such terror and consternation throughout the old and new world, is generally supposed to have made its appearance in 1817, and first attracted attention on its breaking out at Jessore, a large and populous town about 62 miles east from Calcutta. It did not originate there, but broke out simultaneously in various and distant parts of Bengal.* It was here considered by the authorities on the spot, as of a local nature, and attributable to the intemperate use of raw fish and bad rice; but it rapidly spread through the adjoining villages, running from district to district, until the whole province of Bengal was affected.†

In a few weeks it extended to the Capital of British India, having prevailed with violence at the intermediate towns. In 12 months it ravaged the greater part of Hindostan.

In 1818, Bombay on the western, and Madras on the eastern coast were invaded in August, the difference of invasion only being two days.

In 1819, it shows itself at Ceylon, taking an eastern course, it appeared at Malacca, Java, and other of the Oceanic Islands, advancing then in a notherly direction, it entered Siam, and destroyed 40,000 persons in the town of Bankok.

In 1820, Cochin, China and Tonquin, together with Eastern Asia, were invaded. It crossed the Sea of Arabia in 1821, to the city of Muscat, one of the principal commercial ports of Arabia, here its mortality was truly frightful; 6000 dying, many of whom were not sick above a few hours.

The chief ports and towns along the Persian Gulf, felt the influence of the pestilence, particularly Bassarro, where nearly 1000 died daily for 15 days, while at Bagdad 30,000 perished. In 1822, Servia and Turkey were affected, and the following year, it appeared along the Asiatic Coast of the Mediteranian, and a town on the Caspian Sea. During the years 1824, '5, '6, and '7, it re-visited many of the countries already mentioned. In 1830 and '1, it extended through Poland, Austria, Russia, and the Coast of the German Sea. In October, of this year, Hamburg, and Sunderland in England became

* Cholera Magazine, July 1832. † Johnson on Tropical Climates.

affected, and the same time, the towns in the North of England were visited by it.

In February of the following year, it was in London, in March, in Cork, Dublin, and other towns of Ireland, and on the 26th March, it was officially announced in Paris. In 15 years from its first irruption in the Delta of the Ganges, it spread over Asia, traversed Europe, and commenced the work of death on the Banks of the St. Lawrence. Since which period, (8th June, 1832,) it has spread itself over the North-American States and Provinces.*

Having given you a geographical outline of this modern scourge of the human family, we proceed to inquire whether it is Cholera Morbus in an aggravated form or not, as it was supposed by many to be, and its most probable causes. Your committee are unanimously of opinion, that it is not Cholera Morbus, properly so called, for it bears no analogy to it, except in the vomiting and purging, and according to their experience with the epidemic, the term Cholera is a misnomer. In Cholera or Cholera Morbus, there is an increased secretory action of the liver, throwing out a superabundance of bile, thereby producing an emetic and cathartic action, and great irritation in the stomach and bowels. In the disease denominated Cholera, the very reverse is the case; there is no bile to be seen, the liver is in a torpid state, and it is with great difficulty roused from its torpor. Cholera from its very derivation, signifies a flow of bile, but in the disease that prevailed here during the last season, it was a rare thing, if ever, to see bile, until it was subdued by powerful treatment, and in the majority of cases, this all important fluid was never again secreted. In India, it is called *mort de chien*, spasmodic Cholera, &c. Dr. Good thinks the words *mort de chien*, a corruption of the Arabic *mordekie* or *mordechie*, the very name by which Dellon says the natives denominated it, and which significantly imports, the "death-blow," &c.† Johnson and many others of the British Army and Navy surgeons, assert, that bilious accumulations are not to be seen either in the stools, or what is ejected by vomiting, from the beginning to the end of the disease; neither is there the slightest

* See McIntosh's P. P

† Good's Study of Medicine.

appearance of natural or healthy perspiration. A watery fluid is occasionally forced out by the spasms and pain, while the skin is shriveled and tense, and the subcutaneous or perspiratory vessels perfectly torpid. In exact proportion as bile appears, and the nearer its approach to a natural quality, so much the less is the danger.* If our time permitted we could adduce many striking proofs to strengthen our position, but we must proceed to our next inquiry, viz. the causes of the epidemic. We believe they are local, at any rate, wherever the disease has prevailed in Carolina. We are decidedly of opinion, that with us—in Charleston—and on the Savannah River, the causes were local, and in a great degree, depending upon miasm. That from the peculiarity of the season, and peculiar state of the atmosphere, the malaria was more malignant, and its effects upon the human system, more deadly. That instead of producing our usual endemial diseases, it acted more powerfully and immediately upon the skin and digestive organs, crushing the whole animal system, and destroying, without parallel, human life. It is a remarkable fact, that from the 15th of June to the 8th of September, there was but one single case of fever on this Island, within the knowledge of your Committee.

2. We sustain our position, from the experience of our East-India brethren. "The sudden and powerful check to perspiration, the unparalleled atony of the extreme vessels, debilitated by previous excess of action, and now struck utterly torpid by the cold, raw, damp, nocturnal land winds, loaded with vegeto aqueous vapor, and abounding with terrestrial and jungly exhalations." It must be fresh in the memory of every one, the frequent wet, damp and moist atmosphere, that existed in the early part of last summer. The cold, raw, easterly winds, in the latter end of May, June and July. The sultry days, and cool damp nights, which frequently alternated in the beginning of August. A state of atmosphere clearly favorable to the propagation of epidemics. Taking into consideration, the filthy condition of many places, the many errors committed in eating unripe fruits, shrimps, and fish half cooked, and in many instances nearly spoiled: is it not clear to every unprejudiced mind, that some

* Johnson on Tropical Climates

epidemic should have made its appearance, and this was more favorable and congenial to the disease, termed Cholera?

We assert upon the best medical authority, that atmospheric vicissitudes, not only in this country but likewise in India, are the most prominent causes of the origin and spread of Cholera. "Numerous cases* are before me, exhibiting the direful effects of these atmospherical vicissitudes, aggravated, no doubt, by the land wind effluvia, and quotes the following striking instance: a seaman on board a ship lying in Back Bay, in the month of June, went to bed rather intoxicated; about midnight he turned out, in a state of perspiration, and got upon deck, where he went to sleep. During the preceding day, the land wind had been hot and sultry, the thermometer ranging from 86° to 88°. In the night the mercury fell to 74°, with raw damp gusts from the shore; he awoke with a shiver, and left the deck, but was soon seized with frequent gripings and purging, and in seven hours after the attack he died.

With regard to the remote causes of this disease, Dr. Eberle observes, "it is manifest that high atmospheric temperature constitutes the principal agent concerned in its production. Cool and damp night air, or exposure to a current of fresh air, after the liver and skin have been over excited, by the previous influence of solar heat and exercise, is one of the most common exciting causes of this affection.†

Mr. Hood of Brighton, tells us that the peculiar influence which produces Spasmodic Cholera is connected with the atmosphere as well as the earth. In October, 1818, the East India Company's ship lay at anchor in Languo Roads, with a healthy crew of 100 men, and the wind on shore. One night the wind changed to a land breeze, and in the space of one and a half hours, seven of the sailors who slept upon deck were taken ill of Cholera.‡

Professor Chapman, of Philadelphia, believes that the disease is produced by an epidemic agency, of which we know nothing, but it is not improbable, it is owing to an æriform poison, which acting through the medium of the

* Johnson on Tropical Climates, vol. 1. † Eberle's P. P.

‡ Johnson on Tropical Climates.

stomach, on the ganglionic nerves, so impairs the system, that its functions are in a greater or less degree, suspended. Is not Malaria, an æriform poison, conveyed through the medium of the air? Does it not affect the system through, or by the nervous system? Some of the Russian physicians believe that it is propagated by æriel miasmata and exhalations from the earth. "The sudden appearance," says Dr. O'Chel, "of the pestilence, and the rapidity with which it diffuses itself, whenever it appears, strongly corroborates this idea."

Fergus of Vienna believes, that the subjects of these cases had all been exposed to cold, or had made an error in diet.

Benaghi of Warsaw asserts, that its prevalence in Europe has been in proportion to the prevalence of unseasonable and long continued cold and damp, and remains longest in those soils, which are low, flat, humid and populous.

The next division of our subject, which claims our particular attention, is the contagiousness or non-contagiousness of Cholera.

Your Committee are duly impressed with the great importance of this part of their subject. They are unhesitatingly, non-contagionists, and believe that Cholera is no more contagious, than Yellow Fever, or our Country Fever, commonly so called; but that, like these, it may be contracted, through particular local atmospheres.

We shall confine ourselves to facts, leaving hypothesis aside, and support our position from the best experienced authority at hand. To enable you to understand more fully the doctrine of contagion, we would observe that it may be understood to be that "peculiar species of matter given out by a diseased surface, which is capable of producing a condition of disease, in a living body, similar to that, whence it derives its existence." It is divided into palpable and impalpable. Palpable contagion, requiring the actual contact of a diseased body to propagate it, as for instance, the vaccine, venereal, &c. Impalpable contagious poison. is said to be soluble in atmospheric air, and is conveyed and propagated through the medium or agency of the atmosphere, as Measles, Scarlet Fever, &c. In other words, impalpable contagion and infection are synonymous.

1st. We see in the Report of the Committee of Health at Moscow, that at the opening of bodies, who had died of Cholera, to the minutest inspection, of which four or five hours a day for nearly a month were devoted, neither those who attended at the operations, nor any of the assisting physicians, nor any attendants caught the infection, although with the exception of the first day, scarcely any precautions were used.

In the Cholera Hospital of Cincinnati, in which, during a period of five weeks, there were constantly from 15 to 20 Cholera patients, not a single case of the disease occurred among the physicians attending, nurses, and other attendants, although some of these remained in the wards day and night, during the whole period, and frequently slept in beds, in which Cholera patients had lain and died.

Dr. Walker speaking of the disease as it occurred at Moscow, says "that persons had put on the clothes of patients who were very ill, and had died of cholera, had lain on their beds, and even alongside of dead bodies, had bathed in the same water, where bad cholera patients had been bathed just before, and that notwithstanding, not one of those individuals were attacked with disease. It is said that 40,000 persons fled from Moscow to the country, but there was no instance of the disease having been conveyed by them to the district that received them."

The Russian physicians, or a majority of them, do not believe the complaint contagious.

Seven men were attacked with it on board of a large East India Company's ship; they were carried below, and on the authority of Mr. Horslay, the surgeon, the whole crew were ordered below at night, and the ports to be closed. Thus were all the ship's company exposed, in a confined air, to the animal effluvia of seven diseased persons, and yet no new case occured after the crew were removed from the deck.

It does not appear that the routes or line of communication leading from the St. Lawrence to the United States, have been the means of conducting it to our territories, for it commenced in New-York, without a possibility to trace its immediate origin. It appeared in the City of New-York, on the 24th of June, ascended the Hudson river, and on the 3d July showed itself in Albany, while

the intermediate towns between the two cities were exempt from the pestilence.

The disease commencing at Quebec, ascended the St. Lawrence, passed along the Lakes, until it reached the Missouri, Ohio, and Mississippi rivers—it did not follow the land route.—*Jackson.*

Nearly simultaneously with the invasion of Cincinnati, Madison at the distance of 80 miles, Louisville 150 miles, and St. Louis 400 miles below, were attacked, and by the latter end of the month, it broke out in New-Orleans. —*Drake.*

Dr. Kane of Plattsburg, says it cannot be traced (in Canada,) in any instance to contagion. Many cases occurred in the city, six weeks previous to the 10th inst. long before the shipping or emigrants arrived.

The Montreal physicians account for the disease on the principle of Congestion, and view it as differing in no respect from the endemic diseases of the United States and Canadas, save that it is an epidemic.

In Philadelphia, the first cases reported were in separate and distant parts of the city, and had no intercourse with each other. In New-York and some of the western towns similar facts were noticed—facts which are directly opposed to contagion.—*Dr. Morton.*

The first case which came under the notice of your Committee was a carpenter fellow of Dr. Legare's, while the Cholera was prevailing on the Savannah River—he died—his body was examined by your Committee in conjunction with another medical gentleman. Neither of the physicians or attendants contracted the disease. A few days after, a woman belonging to the same gentleman, exhibited very strong symptoms, but recovered; the Doctor immediately removed the negroes from their dwellings, to a point of land on the same tract, only situated immediately on the river. They became perfectly healthy, no other showing the slightest symptom of disease, on the plantation or on the island. Were not these two cases owing entirely to location? May it not likewise be said of the cases on the Savannah? As soon as they reached the pine land settlement, there was scarcely any new cases occurring.

During the last season, the first case occurred at the Parsonage, on or about the 10th of June, it terminated fatally, yet no other person was affected at this time.

On the 19th of June, there was another case at the adjoining place, which recovered; no other occurred here, although the inmates of the plantation, were all more or less, in the room at times.

(To be concluded in our next.)

The Errors of a Cultivator of the Vine.

So much has been written on this subject, and by so many who knew nothing about it, that it is not wonderful, a novice like myself, should have been led into many radical mistakes. My experiments, trifling as they are, may induce others to follow in my steps, and if they act for themselves, light may be thrown upon one of the most innocent, rational and interesting amusements, that an old man can take up with,

Amongst the employments for the summer, in a lonesome neighborhood near the mountains of South-Carolina, I undertook to cultivate the vine in my garden. I had never seen the process, although I had read many books on the subject, and the impression on my mind was, that if trained at a height of ten or twelve feet, success would probably attend my efforts.

To gain this height as speedily as possible, as soon as the cuttings began to shoot out the second year, I turned my attention altogether to gaining height. For this purpose, I kept down every lateral shoot, and training the leading one carefully up a post, I succeeded that year in reaching, in some cases, a height and length of stem that very much surprised me. I was not prepared to take advantage of the rapid growth, for I had no arbor raised to receive my vines, nor even a good espalier. With almost back-country thriftlessness, I patched up, what I was forced to call, "*a sort of a contrivance*," by way of espalier, and on this my vines got so fixed that I could not extricate them, to prepare for next year.

Early the third year, I prepared to make at least a small crop of grapes. The few shoots, I had left on the vines, more by accident than design, I trimmed down to *one*, and occasionally *two* eyes. I had read that each eye would produce me a bunch of grapes, and I knew from

experience in other agricultural matters, *that a very small crop would be likely to be well tended!* I therefore left as few chances as might be, of the vines bringing more grapes than were necessary.

As the spring advanced, I got deeply interested in this new occupation, and there being a much larger and finer crop, than I could have expected, without inquiring into the cause of this, my special attention was called to prevent the rot or dropping of the fruit.

Reasoning from my slender experience in this culture, it struck me that nature in giving the immense luxuriance to vines, had some other object in view, than merely producing wood and superabundant shoots; that probably if this luxuriancy was not kept down, I should, in gaining size in my vines, lose my grapes by the rot; whereas if the growth of the vine was entirely kept under, the extra nourishment would be directed into the right channel, and strengthen and ripen all the fruit I had on them.

My success was complete; as fast as a shoot or a leaf put out, near or on the fruit stems, I pinched them off with my nails while they were tender, and cut off every one of the long shoots but one. My watchfulness was excited by continued success, and I had the gratification to see every bunch of fruit hastening to maturity, with scarcely the loss of a single grape.

Confident that I should have fruit, and of the best kind, I now locked up my garden, and kept the key in my pocket. My visits were indeed frequent, and my watchfulness extreme, but abundance of the most tempting looking grapes I had ever seen, could not be neglected. To be brief, I kept them hanging a full month after every body pronounced them ripe, and from the richness of flavor, the delicious ripenes of full maturity. I was more amply rewarded, than I had ever been before.

The fourth year, I pruned again, leaving three or four eyes on such fruit stems as I thought necessary, expecting (as I had before expected) to have a single bunch to every eye; that is, three or four bunches on each fruit stem. Guess my surprise, Mr. Editor, on now observing as the fruit came out, that instead of a bunch of grapes at each eye, a new fruit stem put out there, on which there were sometimes three, sometimes four, and I verily believe, sometimes five bunches. I was puzzled by this un-

looked for quantity, which was four for one, and hesitated for some time what I should do. At length, however, the commendable desire of ascertaining a fact, conquered my fondness for even such grapes as I had enjoyed last year, and I decided to try *to save from the rot*, all; even the immense quantity of fruit that was daily advancing.

With this sole object kept in view, I pursued steadily my last year's plan. I nipped off daily, such young shoots as appeared, almost while in the bud, and especially kept the fruit stems, on which the grapes were hanging, from extending in length. Here and there I allowed a main shoot to push onward, as I contemplated erecting my twelve feet arbor, and looked forward to covering it in the most perfect manner—all other wood was kept down.

But I must conclude. My experiment of saving the grapes from dropping, succeeded beyond my must sanguine expectations; the fruit hung until a frost but never ripened! There was more that could be perfected by much older vines. Yet although I lost the use and enjoyment of it in its ripeness, I satisfied myself as to what it was that occasioned the rot in grapes. I am persuaded, it is because the growth of the vine itself is allowed to go on, after the fruit is set. Keep the young growth from putting out beyond an inch, by pinching it off short, and your fruit will not drop. When it is apparently ripe, let it still hang two or three weeks on the vine, (locking up your garden,) until perfectly matured, and in order fully to enjoy it, eat it early in the morning, or at mid-day.

My errors ought to be clearly stated; they were first in training up a single stem without a branch; from which mode, such of the vines as accidentally lost their leading shoot, were left, as the French say, "sans ressource," and died down to the ground, while others perished altogether.

The second was in neglecting to have substantial supports prepared before hand. From want of this my vines suffered, while the trouble it cost me was enormous.

My last error had nearly proved fatal. From permitting the vines to be completely exhausted by the quantity of fruit left on them—they will not recover their strength for years to come.

AN UPPER COUNTRY RECLUSE.

PART II.

SELECTIONS.

Culture of Silk in America.

[FROM THE FARMER AND GARDENER.]

We copy the following editorial notice and the Report on the subject of Silk and the expediency of promoting it, from the *Richmond Enquirer.*—By the remarks of the editor of that paper, it will be seen that an excellent spirit is abroad in the Old Dominion, and in all sincerity we say, "God speed the good work."

We have seized the opportunity of an open day to lay before our readers a very interesting Report presented to the last Congress by Mr. Adams, on the raising of the Silk-worm, and the manufacture of Silk, in the United States. The reader will probably be as much surprised as we were, to see the extent to which this employment is carrying itself in our country. In Virginia, we are not idle—as two companies at least have been organized. In addition to these, we are apprized, that the U. S. Arsenal, above this city, which has been for some time discontinued for that purpose, and was going to ruin, may probably be converted into a Silk Laboratory—and that 60 or 80,000 mulberries are expected to be planted out in the grounds. In the neighbourhood of this city, we know that attention begins to be devoted to the cultivation of the Mulberry; particularly, the broad leaved Chinese Mulberry; which is now easily propagated by slips. Among others, Mr. John Carter, the skilful and successful cultivator of the Vine, has planted out this spring about 40,000 slips of this succulent species of Mulberry.

HOUSE OF REPRESENTATIVES.
February 25, 1837.

Read and laid upon the table.

MR. ADAMS, of Massachusets, from the Committee on Manufactures, to which the subject had been referred, made the following

REPORT:

The Committee on Manufactures, to whom, at the last session of Congress, was referred a resolution of the House, instructing them to inquire into the expediency of promoting the culture and manufacture of Silk in the United States, respectfully report:

That, in fulfilment of the instruction of the House, Mr. Andrew T. Judson of Connecticut, then a member of the House, and of the committee, was authorized and requested to continue and pursue the inquiries which, for some time before, he had already commenced, to obtain from various parts of the United States, the information respecting

the actual condition and prospects of those important articles of cultivation, which might most effectively promote the purposes of the resolution of the House; that those inquiries were accordingly pursued with equal perseverance and intelligence by Mr. Judson, but without his being able to complete them before the close of that session of Congress; that, previous to that time, his services being required in another department, he resigned his seat as a member of the House.

But Mr. Judson did not, on that account, intermit or relax in the researches upon which he had devoted his time and attention in relation to the cultivation and manufacture of silk. He obtained the assistance and co-operation, in the prosecution of his inquiries, of F. G. Comstock, Secretary of the Hartford County Silk Society, and editor of the Silk Culturist, a periodical journal, published at Hartford, and specially devoted to this interesting cultivation. Twenty two numbers of this valuable work have been transmitted by Mr. Comstock to the committee, together with a practical treatise by him on the culture of silk, adapted to the soil and climate of the United States.

A letter from Mr. Judson, of the 21st of January last, to the chairman of the Committee on Manufactures, contains a concise summary of the information collected by him pursuant to the charge of the Committee, and in furtherance of the views indicated by the resolution of the House. The chairman is instructed, by the committee, to present that letter to the House, and to move that it be received as part of their report.

JOHN QUINCY ADAMS.

HOUSE OF REPRESENTATIVES, U. S.
February 25, 1837.

CANTERBURY, Connecticut, Jan. 21, 1837.

SIR—Having had the honor to be a member of the Committee on Manufactures at the last session of Congress, when that committee was instructed, by a resolution of the House, "to enquire into the culture and manufacture of silk in the United States," and having been directed by the committee to make the report, I have devoted that attention to the subject which its nature, and my other duties, would allow; and now have the honor of communicating to you the result of my investigations, that it may be submitted to the members *now* composing the Committee on Manufactures.

It was my intention to have prepared a report at the last session, but the time intervening between the assignment of the duty to me, and the close of the session, rendered it utterly impracticable. The gentlemen who had engaged, and were engaging, in the business, were scattered throughout the whole extent of the country, and it was impossible to ascertain what progress they had made in the short time allotted me. The want of this information, and the suggestion of a gentleman whose time is exclusively devoted to the introduction of the business, and who kindly proffered me the use of his extensive correspondence, and the aid of his personal services, in collecting the facts during the recess, induced me to defer it till the present session. Under these circumstances, I have thought the subsequent resignation of my seat in Congress would not exonerate me from the discharge of the duty thus imposed, or furnish an apology for neglecting it. In addition to this, I was aware the brief period prescribed by the Constitution for the present session, would be inadequate to a thorough

investigation, should the duty of preparing a report be assigned to another member of the committee, and the expectations of the House and the public must, at least for a time, be disappointed. This explanation will, I trust, exempt me from what otherwise might appear to be an officious interference with the business and duties of the committee.

It is already known to the committee that the culture of silk has been attempted in this country at different periods of time, the principal, however, of which, fall within the last century. It would be interesting, and probably useful, to trace the history of this branch of rural economy, from the first attempt to introduce it in Virginia, in 1623 by James I. to the present time; but as it has been compiled and embodied in a manual prepared under the direction of the Secretary of the Treasury, in pursuance of a resolution of the House, passed the 11th of May, 1826, I have deemed it advisable to confine my inquiries to the present state of the culture and manufacture of silk, and the more immediate causes which have produced it.

The present state of these branches of American industry, and the interest which is so extensively felt in relation to them, owe their origin principally to the efforts of a few patriotic gentlemen of the county of Hartford, in Connecticut. In the year 1834, they formed an association under the name of the "Hartford County Silk Society," for the purpose of collecting and disseminating practical information relating to the best methods of cultivating the various species and varieties of the mulberry, and the rearing of the silk-worm. To facilitate their operations, and open a channel of communication with the public, they immediately commenced the publication of a monthly periodical, under the significant name of the "Silk Culturist and Farmers' Manual," and placed it under the editorial charge of the Secretary of the society. The editor immediately entered upon the discharge of his duties, and has since devoted his whole time and attention to the subject. The officers and members of the society, particularly the President and Secretary, being practical men, and ardently devoted to the cause as a great national object, have been incessant and unwearied in their exertions to accomplish its general introduction. In their endeavors to draw the attention of the public, and particularly agriculturists, to the subject, and stimulate them to engage in it as an important and lucrative branch of rural economy, they have cautiously, and I think wisely, passed over the ingenious theories of foreign writers, and confined themselves to the results of experiments fairly and faithfully made, and the simple statement of facts. This course will approve itself to the understanding of every individual of reflection, especially when the variation of soil and climate of different countries, and the dissimilarity in the habits and pursuits of their inhabitants, are taken into consideration.

The anticipation of a sudden transition from poverty to competence, or from competence to wealth, is, of itself, a powerful incentive to embark in any new project which presents itself to the mind; but the disappointment and mortification consequent upon it, when illusory, are as painful as the success is gratifying when real.—The proneness of man to "air-castle building," needs no encouragement, but requires restraint; and the individual or individuals who take the responsibility of recommending to the farmer a deviation from his ordinary routine of husbandry, must be careful that the advantages proposed are real rather than imaginary, or they will ultimately awaken in

their own bosoms painful instead of pleasurable sensations. These principles seem to be the cardinal points in the faith of the Hartford County Silk Society, and by them the members appear to have scrupulously governed themselves in promoting the great object of their association.

The publication of the Silk Culturist, at a merely nominal price, and on the personal responsibility of the secretary, has exerted a powerful influence in awakening a deep interest on these new branches of American enterprize. The extent of this interest may be judged of by the fact, that most of the political, commercial, and literary publications of the day, contain paragraphs urging farmers and others to engage in them, and assuring them of their practicability and profit. —These show the light in which the subject is viewed by intelligent men, in different sections of the country as a public object. The extent, also, of the interest felt by individuals in the success of the enterprise, as a source of individual wealth, may be estimated by the fact, that there are now in the office of the Silk Culturist from 3 to 5000 letters of inquiry, &c., in relation to it. This interest is further manifested by the fact, that several other periodicals devoted wholly and partially to the subject have been started and are co-operating in the great work.

But notwithstanding both the public and individuals may be deeply interested in the culture and manufacture of silk, its introduction into this country may be unattainable. Our soil and climate may not be congenial to its growth, and the number, habits and pursuits of our population may not be adapted to its manufacture. These are insuperable difficulties, if they exist; and consequently, I have given them a prominent place among the topics of investigation. The result of all my inquiries in relation to the adaptation of our soil and climate are of the most encouraging character. From all the information I have been able to obtain, I am fully satisfied, that there is not a state in the Union, and perhaps I might say not a country, where the mulberry may not be cultivated, and the worm reared. Experiments have been made in all parts of the country, and their success has established the the fact, that the mulberry will grow, and the silk-worm will thrive, throughout the whole length and breadth of the United States. The rigor of northern winters has, ordinarily, no injurious effect upon the Italian mulberry; and the insect which feeds upon its foliage, produces the silken fibre, being in a torpid state, and secluded from the frost during the cold season, sustains no injury, or even inconvenience, from its severity. It was formerly doubted whether the *morus multicaulis* could be acclimated in the Northern and Middle States; but late experiments have satisfactorily proved that, by cutting down the shoots in autumn, the roots will endure the coldest winters, and send up a new gyowth of shoots in the spring, and produce an abundant crop of foliage. This appears to be the method successfully pursued by the silk growers in India; and with the same treatment in this country, there is no doubt of its acclimation.

The introduction of this valuable variety of mulberry, at a time when the attention of American silk growers was aroused to the subject, and the facility with which it is cultivated and multiplied to an indefinite extent, affords, in my opinion, a full guaranty against those failures and interruptions in the business to which it has heretofore been subjected. It has been ascertained by experiment, that the

foliage which may be gathered from annual shoots upon an acre of land, will furnish food enough to sustain a family of worms sufficiently numerous to make 128 pounds of silk, worth, at present prices, $640. Though there is now but little doubt that, treated in this manner, the *morus multicaulis* will, in the end, supplant the Italian, yet it is adjudged advisable, by most silk growers, to continue its cultivation. Its great value for fuel and timber, especially for ship-building will ever make it worthy of cultivation; and should any unforeseen circumstance render the successful cultivation of the former uncertain, or impossible, the silk grower will be able to make silk from its foliage, of good quality, and in quantities.

An imaginary difficulty in rearing the worm, and enabling it to make its cocoon, has been urged as a reason against attempting it; but I am happy to find that the process has been so far simplified as to be intelligible to the most unlearned in rural affairs. So simple and easy is the care and management of the worm, during its brief life of labor, that children, with a little instruction and experience, can supply all its wants both in sickness and in health, and render it all the assistance and attention necessary to its comfort and the completion of its labors. The process of reeling, also, has become so familiarized, that children perform it with skill and dexterity. In foreign countries, where silk is extensively grown and manufactured, the business of reeling is kept, to a great extent, distinct from growing; but I think it desirable for every grower in this country to acquaint himself and family with the art, as the value of the silk is more easily and accurately ascertained, and is less liable to injury in transportation. Thus far, the production and manufacture of silk may be carried on in the family of every farmer, and at a profit far beyond his expectations.

From all the facts in my possession, I am satisfied that every farmer may devote a portion of his farm and attention to the growth of silk, and thereby much increase the value of its products. The gathering of the foliage, and the feeding of the worms, may be performed by the children, and such other members of the family as are incapable of more arduous labor; and who, if not thus employed, would spend their time in idleness, or, what is worse, mischief. If productive labor is a principal source of wealth, both to nations and individuals, it is desirous it should be increased to its greatest possible extent. This can only be done by seeking out objects to which the labor of the young, old, and infirm, is adapted; and, among these, I know of none more appropriate than the culture of silk. The same remarks are substantially true with respect to its manufacture.

It has also been erroneously supposed, that the manufacture of silk was attended with extraordinary difficulties; that it required much complex and expensive machinery, and a skill which Americans were incapable of requiring: but it has been found to be as simple as that of cotton or wool: and requiring a far less expenditure in buildings, machinery, and fixtures. The weaving of silk fabrics on power looms has been attempted, and the success that has resulted from the experiment is of the most flattering character. Fabrics for gentlemen's wear, cravats, &c., have been woven on power looms, which, for beauty of texture, fall but little, if any, below those of foreign manufacture. In this respect, we are already in advance of the silk manufacturers of Europe and India; and it is believed that the advantage the American manufacturer will derive from the aid of labor-saving

machines, will more than counterbalance the advantage the foreign manufacturer does or can derive from the reduced price of labor in countries of a more dense population.—Hence, it is believed that this country can successfully compete with other countries, both in the culture and manufacture of silk.

The importance of introducing this species of manufacture may be estimated by the fact, that the importations of manufactured silks, during the year ending the 30th of September last, amounted to $17,497,900, being nearly a million more than the previous year. Most of this numerous amount is consumed in this country, and is an annual tax upon the consumers. It is also to them and the country a total loss; for, it is believed there are in the country a sufficient number of laborers to produce and manufacture the whole amount, who are unproductively or unprofitably employed. If this be so, it follows, as a necessary consequence, we sustain an annual loss of double that amount in our unemployed and misapplied labor. This amount will be astonishingly increased, if we add to it all the evils of crime and pauperism, which are the ligitimate and unavoidable consequences of idleness and unproductive labor. The connexion between idleness and poverty has not, and never will be, dissolved. so long as the relation between cause and effect exists; and crime may not be a necessary concomitant, yet it is a common attendant. The same is true, though in a less degree, in regard to missapplied labor. The fruits of unproductive labor is poverty and wretchedness, and these are often the remote, if not the immediate, cause of crime. The importance, therefore, of the culture and manufacture of silk, both in a pecuniary and moral point of view, is immense.

Our independence also urges us to engage in the culture and manufacture of silk. Fabrics, of which silk in the whole, or a component part, are indispensable. In the early ages of the world, when the customs and fashions of society were rude and unpolished, silk was considered a luxury which none but princes could indulge; and even in them itwas supposed to be unpardonable extravagance; for it was among the enumerated prodigalities of Heliogabalus, that he had a garment made wholly of silk. The Emperor Aurelian, also, 270 years afterwards, refused his empress a silk robe, merely because he could not incur the expense. In still later times silk has been considered luxurious, for it is said of James I., before his accession to the English throne in 1603, that he was compelled to borrow a pair of silk hose of the Earl of Mar, when he first appeared before the ambassador. But the customs and habits of society have since undergone an astonishing change. Silk is no longer considered a luxury, but an indispensable article. So common has it become, that it forms a considerable part of our wardrobes, and enters more or less into almost every garment, both of male and female dress. However unnecessary and extravagant silk may have anciently been considered, it cannot now be dispensed with, neither can its consumption be confined to the wealthy. Time was, and now is in some countries, when different orders in society, growing out of rank and wealth, existed; but this state of things no longer continues in this country. Wealth and descent is no longer the thermometer of respectability, but industry, frugality, and the practice of the moral and social virtues. The poor as well as the rich must be clothed in silk: and why would they not? They are as meritorious, and often more so.—The question is, therefore, settled, that there can be no diminution in the consumption

of silk; and unless measures are taken to encourage its culture, we must be forever dependent on foreign labor for its production. Though foreign laborers may be dependent on us for the consumption of their products, yet it detracts much from our independence to be dependent on them for necessary articles of clothing.—It is true, while our amicable relations with foreign countries continue, we shall be supplied; the advantage they derive from this item of our commercial dealing will ever afford us a guaranty against want in times of peace, yet our intercourse may be interrupted by war, and we be thrown upon our own resources for the production of this staple article of consumption. But if this state of things cannot be reasonably anticipated, our love of independence, and, above all, a prudent national economy, should prompt us to prosecute a branch of industry which promises such important results, and the practicability or feasibility of which is no longer a problem.

The importance of this branch of rural economy is also much increased, by the facilities it affords to all to attain competence and wealth. There is probably no other business, in which the same amount of capital will yield an equal amount of income. It will not be expected that I shall go into an accurate calculation of the product and profit of a plantation and cocoonery; yet, perhaps, I ought to say, that, within the range of my own observation, there can be no better investment of capital. The small amount of capital necessary to a commencement of the business is also a facility which no other branch of business, within my knowledge, holds out to the enterprising. A few acres of land of ordinary fertility, and a few dollars in money for the purchase of seed and plants, wil enable the silk grower to lay the foundation for a plantation on a considerable scale.

Another facility peculiar to the business is the ease with which operations are extended, without a corresponding extension of capital The ratio in which the *morus multicaulis* may be multiplied, by means of cuttings and layers, is truly astonishing. Experiments have proved that, with a little labor and attention, they may be more than quadrupled every year. This will enable the farmer in moderate circumstances to compete with the capitalist, and prevent monopolizers from engrossing the whole of the business and its profits. To the individual of limited means, and a large family of children dependent on him for support and education, the culture of silk holds out encouragement of extraordinary promise; while, at the same time, it affords ample opportunity for the capitalist or the incorporated company to make large investments with the moral certainty of success.

The culture and manufacture of silk must also, for a long time at least be free from the depressions and embarrassments which, at times, are thrown upon other species of manufacture by enterprise and competition.—Before the present prices can be materially reduced, an amount of domestic silk equal to the large amount annually imported must be produced; and this cannot be expected while enterprise and labor have so many objects on which to expend themselves as the various sections, climates, interests and pursuits of this extensive country present. The disproportion also, which has existed for the last 20 or 30 years, between the increase in the consumption of silk, and the increase of population, and which is becoming greater every year, will, it is believed, prevent the American silk growers, with all the aid and encouragement which may be extended to them by the National and State Legislatures, from producing the raw material

in sufficient quantities to supply the demand, for at least another century.

A good begining, however, has been made, and the business commenced under the most favorable auspices. In the month of September, I caused a circular to be prepared, propounding 26 interrogatories to silk growers, manufactures, and other gentlemen interested in the subject. Several hundred were circulated, and many have been returned with answers to the inquiries. It is, however, to be regretted, they were not forwarded at an earlier day, as a more punctual and general return would have been the consequence, and a greater amount of information collected. The facts, however, as far as they have been collected, (and they are as numerous and circumstantial as under the circumstances could be expected,) are of the most flattering character. From the answers to the interrogatories, the communications of gentlemen in different parts of the country, and such other means of information as I have been favored with, I am enabled to give the following exhibition of the progress and prospect of both branches of the business. The statements being made from correct data, may be relied on, as approximating to accuracy, so far as they go: but it is reasonable to suppose that the view is imperfect, as the business has probably been commenced in many parts of the country, from which no information has been received. These of course, are not embraced: and the business is, no doubt, further advanced, and in a more prosperous condition than will be exhibited.

New England States.

The six New England States are, more or less, engaged in the culture and manufacture of silk; and four of them are encouraging the business by legislative bounties. In Maine, a bounty of five cents on every pound of cocoons grown, and fifty cents on every pound ot silk reeled, is paid from the State Treasury. The growing of silk has also been commenced in several towns in different parts of the State, and the experiments which have been made confirm the belief that the climate is no obstacle in the way of the silk grower; especially from the foliage of the Italian mulberry. In Newport, Fryeburg, Saco, Hiram, and Limington, nurseries have been planted, and are said to be in a flourishing condition, especially in the first mentioned town. This town is situated at about equi-distance between the Kennebec and Penobscot rivers, and within a few miles of the 42th degree of latitude; and yet the young plant stood the severity of the last winter uninjured. A gentleman in Fryeburg has 10,000 or 12,000 Italian mulberries, 4 years old, and several thousand more in his nursery. He fed the last season 5000 worms, which produced about the usual quantity of silk. His confidence is so strong in the success and profit of the business, that he intends to extend it as fast as his means will admit. About $40 worth of silk was made in Hiram the last season, and manufactured into sewing silk; the quality of which is said to be equal to the best Italian. A few pounds were also made in Limington, of excellent quality.

In New Hampshire, the business has been begun, and is prosecuted with considerable spirit, though no public encouragement is given. At Concord, there is an incorporated company, with a capital of $75,000, for the growth and manufacture of silk. The company have purchased a farm of 250 acres, and are stocking it with both kinds of mulberry as fast as circumstances permit. Individuals, also,

in most parts of the state, are planting the mulberry preparatory to feeding the worm. In the vicinity of Portsmouth, many gentlemen are engaging in the business. Experiments have also been made in South Weare, Newport, Dunbarton, Warner, Hopkinton, Keene, and many other towns; and the results have satisfied the experiments that the business is both practicable and profitable.

The legislature of Vermont, by an act passed on the 10th of November, 1835, have authorized and directed the state treasurer to pay a bounty of ten cents on every pound of cocoons grown within the state. This bounty, and a good degree of interest which previously was awakened, has given the business a good beginning. In most parts of the state seed has been sown and planted, and small quantities of silk have been made. In Burlington, Brattleboro', Woodstock, Middlebury, Bennington, South Hero, Montpelier, Orwell, Shoreham, Guilford, Putney, and many other places, the subject is receiving attention, and preparations are making for operations on a large scale.

The legislation of Massachusetts, for the encouragement of the growth of silk, is of the most liberal character. The bounty on all silk grown, reeled and thrown in the commonwealth, is $2 a pound, which is considered by silk growers to be sufficient to defray all expenses attending its growing, reeling and throwing. Before the passage of this law, extensive nurseries and plantations were commenced or projected; but the business has since assumed a more general character. The interest which is felt in this state is attributable, in a great degree, to the efforts of Jonathan H. Cobb, Esq. of Dedham. This gentleman has been several years engaged in the business, and the success he has had, has inspired others with confidence in it. There are several incorporated companies formed, some of which has commenced operations. Among them is the New England Silk company at Dedham, under the superintendance of Mr. Cobb. This company has a capital of $50,000, with liberty to extend it to $100,000. It has already about 20 acres planted with the mulberry, and about 30 more in preparation. In relation to the present state of the manufacturing department, Mr. Cobb says: "We have 16 sewing-silk machines, some of which have been in operation, and others are nearly completed for runing. But a small quantity of sewing-silk has been made yet. We have found organzine and tram, or wrap and filling, to be in greater demand than heretofore; but in consequence of the 40 per cent. protection on sewing-silk held out by the government, we have been building a large mill this season, and are now about ready to manufacture 200 lbs. per week of sewing-silk, which, at present prices will fetch $2,000; and should the tariff remain and the price be kept up as it now is, we shall make a heavy business of it. About $10,000 worth of silk goods, part with a mixture of cotton, have been manufactured in the year past—about one-half from foreign, the rest from domestic silk. We shall continue to furnish, as we have in years past, the wrap and filling for looms in different parts of the country. The Tuscan loom was first started here, and we have supplied many hundreds of them with wraps, for two or three years past."

The Atlantic Silk Company, at Nantucket, has a capital of $40,000. The object of the company is the growing and manufacture of silk. The factory is already in operation, and the fabrics which have been made are highly creditable to the manufacturers. William H. Gardner, Esq of Nantucket is President of the company.

The Northampton Silk Company has a capital of $100,000, with liberty to extend it to $150,000, and under the superintendance of Samuel Whitmarsh, Esq. who is also President. The object of the company is both the culture and manufacture of silk; and for this purpose, they have a plantation of about 300 acres, and suitable buildings. The plantation is being stocked with the *morus multicaulis*, and another variety of Chinese mulberry, which, on many accounts, they think preferable. Their manufacture, at present is principally confined to sewing silk, the quality of which is said, by competent judges, to be equal to the best Italian. The company have also imported large quantities of mulberry trees, with which they are stocking their own plantation, and in part supplying the great demand for that article.

The Massachusetts Silk Company has a capital of $150,000, and a plantation of 160 acres at Framingham. They have now growing 78,000 Italian, and 7,360 Chinese mulberry trees, besides a seed bed of two acres. There are also in this State the Boston Silk Company, the Roxbury Silk Company, and the Newburyport Silk Company, all with large capitals Besides these incorporated companies, individuals are engaging in the business, in most parts of the State, with very promising prospects.

In Rhode Island, where the manufacture of cotton has been long and profitably prosecuted, the manufacture of silk is commencing. There is one incorporated company by the name of the Valentine or Rhode Island Silk Company. This company has a capital of $100,000. The factory is in Providence and the plantation in the neighborhood. It has been in operation some time, and has manufactured some very beautiful and durable articles.

In Connecticut, silk has been grown in considerable quantities for 50 r 60 years, particularly in the counties of Windham and Tolland. As an encouragement to the silk-grower, the State pays a bounty of one dollar on every hundred Italian or Chinese mulberry trees, set out at such distances from each other as will best favor their full growth and the collection of their leaves, and cultivated until they are five years old. The State also pays a bounty of fifty cents on every pound of silk reeled on an improved reel.

There are two incorporated companies in the State—the Mansfield and the Connecticut Silk Manufacturing Companies. The former is located at Mansfield, and has a capital of $20,000; the latter at Hartford, with a capital of 30,000. Both these companies have been beneficiaries of a bank. The business of the latter has hitherto been principally limited to the manufacture of Tuscan straw for ladies' bonnets; but it has lately commenced the manufacture of sewing silk in large quantities of a good quality. There is a silk-factory at Lisbon, which has been in operation several years, and is said to be doing a good business.

Individuals, also, in all parts of the State, are engaging in the culture; several of whom are planting large tracts with the mulberry. The Messrs Cheney, at Manchester, have been engaged the past season in cultivating the *morus multicaulis*, and have been very successful. They intended stocking a large plantation of this variety of the mulberry, and prosecuting the growth of silk, and its manufacture into sewing-silk and fabrics on an extensive scale. Messrs. Brown and Lee, of East Granby, have also extensive grounds devoted to the cultivation of the tree. They sowed, the last season, 120

pounds of Italian mulberry seed, and have several millions of seedlings. They are also extensively engaged in the cultivation of the *morus multicaulis*. Their ultimate object is to unite the manufacture with the growth of silk. There are, also, extensive nurseries at Hartford, Suffield, Framington, Litchfield, New London, Stonington, Durham, New Haven, and many other towns. Mr. Ephraim Cheeseborough, of New London, has invented a simple plan for making cocoons, which promises to be an improvement on the old method. Mr. Isaac G. Botsford, of Roxbury, has invented a machine for the manufacture of organize, tram, and sewing-silk, which is said to be an important improvement in silk machinery. The machine of Mr. Adam Brooks of South Scituate, which has been for some time in use, proves to be a valuable invention.

Middle States.

The subject of encouraging the culture of silk has been under consideration in New York for some time, it is expected it will be given at the present session. Several Silk companies have been incorporated; among which are, the Troy, the Poughkeepsie, the New York, and the Albany Silk-Growers companies. These companies have large capitals; but of their present condition I am not advised. Though the business is engaging the attention of gentlemen in most of the counties, yet my information is limited principally to those of Steuben, Broome, Lewis, Orleans, Monroe, Onondaga, and Suffolk. From these counties communications have been received. In the county of Steuben there are about 20,000 Italian mulberry trees of five years' growth and under, and 1,200 Chinese, one or two years old. About twenty persons have commenced the business; one acre is devoted, and ten more in preparation.

In Broome county, little has as yet been done; but my correspondent says:—"I have no doubt that in three years there will be $100,000 *morus multicaulis* trees in the county." In Lewis county there are a few trees of both kinds, and one gentleman has 8,000 or 9,000 cuttings of the Chinese, ready for setting the coming spring. He says: "people are beginning to awake to the business, and believe it will florish here." In Orleans county, there are about 600 of the Chinese, and 50,000 of the Italian, now growing. Seven pounds of sewing silk have been made, and seven or eight persons engaged in the business on a small scale. It is supposed $200,000 will be invested in the business in five years. In Monroe county, there are large nurseries at Rochester, Greece, and several other places. In the town of Sweden, there are 4,125 Chinese mulberry trees of five years old and under, and about 100,000 Italian; five acres of land are already planted, and fifteen more in a state of preparation. In Onondaga county, there are many of the Italian. On Shelter island, there are 6,000 Chinese, and 100,000 Italian, and 7 acres of land are in preparation. In Southampton, on Long Island, there are 50,000 Italian and a few Chinese; 2 acres of land are stocked, and five preparing. A beginning has also been made in Montgomery county, and some beautiful sewing-silk made.

The foregoing is a very imperfect view of the present state of the business in the great State of New York. In all parts of the State, individuals are engaging with spirit, and there are no doubt New York will become a great silk-growing district.

In New Jersey, several companies have been incorporated; among

which are the New Jersey Silk Manufacturing Company, with a capital not exceeding $30,000, and the Monmouth Silk Company. Several other companies are formed or projected, and enterprising individuals in many parts of the State are cultivating the mulberry, and, in some towns, small quantities of silk have been found well adapted to the business.

A number of companies have been formed in Pennsylvania, under a general law of the State for the encouragement of the culture of silk.

The Beaver Silk Company, at Beaver Falls, in Western Pennsylvania, is about commencing operations under very favourable circumstances. There is also a company in Chester county and another recently formed in Philadelphia. At Economy, the Harmony Society have commenced the growth and manufacture of silk. They have about 10,000 Italian trees, and 453 Chinese, of various ages. They have manufactured sewing silk, vestings, cravats, &c., which are beautiful. Hundreds of farmers, mechanics, and professional men are also engaging in the business.

In Delaware and Maryland the subject is attracting much attention. Several companies have been formed, and individuals are commencing plantations. A company has been incorporated in Queen Anne county, with a capital of $50,000, for the purpose of growing Silk. The Talbot County Silk Company has also been incorporated.

Southern States.

In the Southern, as well as in the Northern and Middle States, much interest is felt in the subject, and much is doing to introduce it to the attention of planters. In Virginia, they are proposing to devote their worn out tobacco land to the culture of silk, in the hope of checking the tide of emigration, which is setting West, and threatening to depopulate the country. There are several silk companies, and many patriotic individuals are making experiments. The Virginia Silk Company has been incorporated with a capital of $10,000—a very liberal charter. The Potomac Silk and Agricultural Company, with a capital of $5,000, and liberty to extend it to $50,000, has also been incorporated. The company have purchased 400 acres of land, and planted about 2,000 Chinese mulberry trees. Mr. J. B. Gray, near Fredericksburg, has also a large number of Chinese trees in a very flourishing condition.

The accounts I have received from North-Carolina, are of the most cheering character; they represent the soil and climate to be remarkably favorable to the growth of the tree and the rearing of the worm, and the planters are disposed to give the subject a fair trial. The same is substantially true as respects South-Carolina and Georgia. Experiments have been made, the results of which have satisfied many of the planters that the young, aged, and infirm portion of their slaves can be profitably employed in the culture of silk; and there is little doubt that in a short time many of them will make silk as well as a cotton crop.

In Florida and Alabama the tree grows luxuriantly, and produces an abundance of foliage. Experiments in rearing the worm have, also, been attended with favorable results; and a portion of the inhabitants are convinced that silk will be the most profitable crop they can make. At Pensacola and Mobile are large numbers of mulberry trees; and arrangements are making by several gentlemen to com-

mence the business. At the latter place, Chester Root, Esq. is preparing for a large plantation. The black mulberry is indigenous, and its foliage has been found to make as good silk as that of the Italian or Chinese. It is also supposed the sterile lands of West Florida will become valuable on account of their adaptation to the production of silk.

Western States.

The soil and climate of the Western State have also been found to be peculiarly adapted to the silk culture; and many farmers and others are turning their attention to it. In Ohio, there are a number of companies incorporated, with large capitals, and under the direction of skilful managers. The Ohio Silk Company, at Columbus, has a large plantation on the rich bottoms of the Scioto, which is fast stocking with both kinds of the mulberry: 30,000 Italian, 4 years old, and a large number of the Chinese, have been set. The company propose to extend their plantation of Italian, to at least one hundred acres, with 1,000 trees to the acre, and an equal number of acres with the Chinese. It is also their intention to add about 50 acres in hedges of both kinds.

A company has also been formed at Mount Pleasant, in Jefferson county, with a capital of $50,000. The Massillon Manufacturing Company have had their capital extended to $600,000, and are determined to engage largely in the culture of silk. Several other companies have been formed, and many more have petitions before the Legislature for acts of incorporation. In the vicinity of Canton, Stark county, 70 families are said to be engaged in making silk; and in Knox, Cuyahoga, Jefferson, Belmont, Washington, Brown, Hamilton, Montgomery, Highland, and several other counties, many individuals are beginning. Several petitions are now before the Legislature praying for public encouragement; and it is expected something liberal will be done.

In Kentucky, a company has been incorporated under the name of the "Campbell County, Silk Culture and Manufacturing Company," and has selected a favorable location opposite Cincinnati. The subject is new in this State, but it is attracting attention, as is apparent from the following extract of a letter from a gentleman near Lexington: "The first talk of silk-raising in this country was about a year and a half since, when a friend sent me the first copy of the Silk Culturist. So great has been the increase of public sentiment, that there appear but few of the rich farmers but who are talking of it as a source of employment for their weak force. There are a great many Italian mulberries of one year's growth. I have near 100,000 in a nursery of five acres; and there is the produce of four pounds and a half of seed more, raised by five of my immediate neighbours; all of which will be planted out in the spring in hedge-rows. I calculate there will be 100 acres planted. The six that are now making experiments are all rich, and can bring into the field one hundred and fifty hands of their own, and as much land as is necessary: and our whole energy will be turned to it."

In Indiana, large quantities of seed have been sown, and a spirit of inquiry has been awakened, particularly among the Quakers at Richmond. A gentleman of that place says: "There has nothing but the Italian been grown as yet, of which there is, to my knowledge, only about 30,000 trees, which are all seedlings. There will be some of the real Chinese, and also of the *multicaulis*, cultivated though to a

limited extent. The business cannot flourish with us till our trees have grown, though our woods abound with the black mulberry." There is a large nursery of both kinds at Madison, and the state will be gradually furnished with trees.

In Illinois, Michigan, Missouri and Tennessee, small beginnings have been made, and the congeniality of the soil and climate cannot, ultimately, fail of making them great silk-growing states.

In looking at the vast amount of silk annually imported and consumed in this country, and the facilities it furnishes for its production, the conviction irresistibly forces itself upon the mind, that our national interest, independence, and respectability, loudly call for such legislative aid and encouragement, as shall stimulate to activity and perseverance, the efforts which are making, to introduce its culture, as a common branch of rural economy. Hitherto, the work has been carried forward by individual exertions; and this is, unquestionably, the true method, so far as individual interest is concerned. But the nation has a great interest involved in it; and it is its duty to foster it in such a manner as will afford it protection and encouragement. The public and individuals, having a common interest in the object, may, by an energetic co-operation in effort, secure its benefits to both.

The efforts which have been made by individuals, and the success which has, thus far, attended them, seem to point out the course which should be adopted by Congress. Enough has been done already, to enlighten the public, so far as its practicability and profit are concerned; and nothing more is wanting, to induce thousands of the enterprising and industrious to engage in it, but a thorough knowledge of its details. Could a general diffusion of practical knowledge on the subject of cultivating the tree and rearing the worm, be effected, I have no doubt the United States would finally become one of the greatest silk-growing countries in the world. It is for the committee to recommend the measures which ought to be taken by Congress to promote this great object; and in their hands I leave it, with one suggestion; if a small and cheap manual could be extensively circulated, at the public expense, I have no doubt it would be well received, and, at the same time, be the best method to accomplish the great object in view. I am, sir, very respectfully, your obedient servant,

ANDREW T. JUDSON.

Hon. J. Q. Adams,
Chairman Committee on Manufactures.

A Prairie on Fire.

[FROM THE PHILADELPHIA, U. S. GAZETTE.]

Leaving the scene of my extreme rambles in the far west, I proceeded over a beautiful rolling country, designated on the maps as "Coteau des Prairie," a ridge about one thousand feet above the River St. Peters, and reached this place, the American Fur Company's old trading post.

We have met with several adventures, and among the rest, came near being roasted alive in a prairie fire. I have a mind to describe it to you. Pliny did not more nobly in the crater of Vesuvius, than your humble servant *might have done* in a prairie fire! It is worth travelling ten thousaud miles, to be an actor in a scene so sublime.

About an hour before sunset, we spied a cloud of vapor, in the direction we were travelling, rising gradually from the earth, and spreading itself to the right and left, as far as the eye could reach.

It resembled at first, a fog I have seen rise from that great waste, the Pontine marshes, and pass off over the Mediterranean, in light columns, of a feathery form, until it was lost in a higher altitude of light. After a half-hour's progress, it acquired a greater density, and, like a London smoke, extended itself over the whole heavens. Suddenly, the sun, which had partially illuminated the sky, sank below the horizon, over the rolling prairie country, in which we were travelling, and all the light became instantaneously transferred to the east, in these clouds, which became brighter, and were driving before the wind, toward us.

Until then, I had regarded it as a phenomena of the atmosphere, but the glare of light increased fast, the air became heated and suffocating, as the wind bore directly upon us. The Indians, who were far in advance, fell back, and announced the prairie on fire, and that it was fast approaching us. At first, there was a general consternation among the whole party. I was alarmed, and demanded, though a half-breed, who spoke a few words of Canadian French, what was to be done.

Our pioneer, the old chief "Whirling Thunder," gave instant orders for the whole party to form a line, which every one obeyed, galloping away to the right and left, and dismounting some ten or fifteen rods apart. In five minutes every one had struck a fire, and applied a torch to the tall dry grass of the prairie, which was soon borne before the wind with terrific fury, in the direction we had come from, snapping and flying into the air, like small rockets. The glare and heat of the fire advancing in the other direction, inereased every moment; our horses became restive, snorting and exhibiting the greatest terror, as it came cracking and streaming in the air before the wind, which had increased to a perfect hurricane.

At this moment, the fire we had kindled advanced slowly against the wind, and from which we were retreating, to avoid the flames and heat. The prairie over which it had passed, being but a sheet of flames, gradually diminishing, however, in brightness. Here we were between two fires, and both advancing towards us, though that against the wind was slower and less intense, but both extended to the right and left, to an immense distance. The one before the wind, we since ascertained to have been about 42 miles wide, and to have run a distance of 170 miles, crossing the streams by the force of the wind. This scene, in connection with the perilous situation in which we were placed, was grand beyond the power of description. Thousands of baffalo, deer, and wild fowl, were bounding and flying in every direction around us, which, added to the noise of the element, sounded like the clashing encounter of hostile armies. I have stood within the convulsed crater of Vesuvius, during a night eruption, and seen a thousand travellers and visitors, flying with lighted torches, gleaming in the distance, before the fiery waves of a torrent of lava. I have seen the deep flood of the Niagara leap from its rocky height into the foaming abyss below; and the rushing avalanche tumble from the glaciers of the Alps, carrying desolation and dismay to the inhabitants of the valleys belows—but, to witness a vast prairie, in the far, far west, on fire, is a scene more grand and thrilling.

'Tis vain to attempt to draw a picture of this night on the prairie, when earth and air were one complete blaze of light—a perfect whirlwind of fire and flames, and the wild beasts were driven, *en masse*, from their hiding places.

The heat becoming intense, the old chief gave the signal for retreat, by a wild whoop, which was echoed by the whole of the Indians, though half lost, amid the noise of the elements. It was instantly obeyed by all, forcing, with much difficulty, our horses through the conflagration we had kindled, and continuing to ride for about three miles at full speed, until we reached a high ridge, where the grass had been light, and was soon consumed. In other places, it was often from four to ten feet in height.

Here we encamped for the night, amidst clouds of smoke, nearly suffocating, and which rose so thick as to shut out the glorious scene we had before witnessed, and how much more romantic to be between two fires, than cast among the embers of *one*.

The following morning, when the party were all mounted, on our *signal horses*, with smoky faces, dresses, and blankets, there being but a shade of difference in the complexion between the white and red man, I could but laugh heartily at the exhibition, as we galloped off in Indian file.

Never was a party better dressed for a carnival masquerade. There was something wild; a picturesque beauty, in such images as we were, under this smoky disguise, for the two first days, particularly while travelling over this wide desolation. There was a peculiar adaption of looks to the brown burnt sod on our trail. This fire had swept through forest and field, consuming the young trees, and the few autumn flowers, which now stud the prairies; and I felt satisfied that we owed our lives to the resolution and coolness of the old chief; for I should have been burned to a modern mummy, had I not have been rescued by the foresight of "Old Whirling Thunder."

Yours, J. H. R.

The means of making large quantities of Manure, and the proper manner of applying it.

[FROM THE FARMER'S REGISTER.]

Dear Sir,—Being confined to the house by an awkward accident, carelessly treated, I know not that I can better employ my time and thoughts, than in endeavouring to contribute my mite for the Farmer's Register.

I am led to believe, from the tenor of many articles in late numbers of the Register, that an earnest desire for agricultural improvement is spreading amongst *some* of the farmers of the present day; and I hope suggestions made with a view to aiding that improvement, will be received in a kind spirit, (even should they occasionally bear hard upon some of the habits chosen or adopted, without a thought, by almost all,) although they may not, in themselves, be worth much, proceeding, as they do, from one who has seen much, and practised but little.

To ascertain the means of improvement, it is sometimes well to inquire into the cause of the great want of it, which is so generally acknowledged, being manifested in the impoverished condition of the land, and many of its cultivators. That this condition is not generally

and fairly attributable to the naturally steril character of our lands is, I think, obvious. That it cannot be attributed to our climate, I think, equally obvious. For I can imagine that but few persons acquainted with agriculture and its products, would be willing to denounce our soil and climate. Then the cause must be sought elsewhere. May it not be found in ourselves? Is our farming founded on correct principles, and systematically pursued? I think not. Do we husband and judiciously apply all the means and sources of preserving and increasing the fertility of the soil? Obviously not. Do we practice strict economy, combined with a generous expenditure, in the management of our crops and laods? Do we not rob and impoverish the soil continually—carrying off all that we can in any way use, (and thinking our merits and prosperity great in proportion to the amount of cotton, tobacco, corn, grain, &c. carried off,) and neglecting, abusing and destroying, even by fire, all that we cannot, or imagine we cannot, use profitably? If the fault is not inherent in the soil and climate, it must rest with the cultivator. Let him study agriculture, as it deserves to be studied. Let him appreciate its relation to the well being of society. Let him try to read nature aright—to understand the value and relation of things, and crops, and of their different parts to each other, and I think he will become a very different farmer and political economist, to the farmers and political economists of the day.

You live amongst your correspondents, one, at least, who is able to explain the principles on which improved agriculture must necessarily be based, at whose practice exhibits the general correctness of his views. Hoping that he may soon be enabled to renew his communications, and conscious of my own inability to explain principles fully, I shall content myself with endeavoring to explain some of the improved practices which have come under my observation.

All farmers are ready to acknowledge the efficacy and value of excrementitious matters combined with vegetable substances, commonly called manure, as one means of improvement. To make manure in large quantities, seems to the initiated to be the easiest thing imaginable; and yet how few farmers make more thad a fourth part of what they ought to make, and how many not even that! I have seen from thirty to forty per cent of a farm manured from the barn-yards annually—although large quantities of hay, straw and grain are sold; this is accomplished too, with comparatively little stock. The secret, and it is one well worth knowing, lies in carefully collecting all the refuse vegetable matter that is grown on the farm, and supplying the yards, in which the stock is kept, with it from time to time as it is wanted, not as collected, but as it is required—and in supplying the stock with plenty of good food and water, in the yards, in preference to turning them out day and night, to seek food and squander manure.

To show the care that is taken to collect materials for making manure, I will mention, that in a few weeks after the grain harvest, the stubbles are all carefully mown, and the stubble stuff is as carefully raked together and hauled to the vicinity of the yards, as is the hay or grain at their proper seasons. To facilitate the mowing, much pains is always taken in ploughing, harrowing, and rolling the land to keep it even, and all stones or other obstructions are gathered and carried off. Again, the whole produce of the corn field is carried off; the stalks are cut even with the ground —not from eight to eighteen inches above it—and after husking, the stalks with their leaves and husks are tied in bundles and hauled under cover,

where they are carefully preserved, and furnish, with turnips, capital winter food for cows—the leaves, husks, and small ends of the stalks being eaten, the rest making litter sufficient to keep the yards dry, and the cattle clean, except in very wet weather, when it is sometimes necessary to add a little straw, or stubble stuff. After shelling corn, the cobs are all conveyed to the yard, to be incorporated in the manure. All manner of refuse vegetable matter from the garden, even to the trimmings of bushes, is also conveyed in the yards. In short, the greatest pains are taken to keep the yards at all times well littered, and to keep the horses, cows and pigs in the yard, as much as possible with a plentiful supply of food. The result is, as above stated, from thirty to forty per cent of the farm manured annually from the yards.

Now it has been, and I dare say, will be again said, by way of objection, that corn stalks do not make good manure; that there is no substance in them; that it does not pay to take so much pains to collect the means of enriching land. Indeed! and how is all this known? Has it been tried? and if yes—I may ask, in the words of another—"What have you tried? How did you try it?"

I recollect well, an instance of the perversity of farmers and others, in opposing, even by ridicule, a deviation from the general habits of a neighborhood—which I will relate for the purpose of showing how strong are the prejudices against corn-stalks and cobs as a means of making manure. An intelligent farmer, wishing to make use of his knowledge of the resources of his farm for his own improvement, deviated from the custom of the neighborhood so far as to prefer making manure on his farm, to hauling it from a neighboring city—which was supposed to be the only available source of great improvement. His neighbors generally condemned his plan in advance. They said "it will never do—corn stalk manure is good for nothing—he will never get his farm up in that way." When the quantity of manure made, was urged on their attention, the reply was still "it will never do—it's good for nothing." Indeed, so much was said about Mr. ——'s folly, that his workmen became dissatisfied with their employment. In the course of a short time, the general improvement of the farm was so obvious, that the few believers began to call the attention of the croakers to the fact—and what, think you, was the reply? "Umph, look at the quantity of manure he puts on—any body could improve a farm if they *would* manure as much as he does."—forgetting their previous judgment, as to the quality of the manure, and their predictions that it would never do.

Another instance is worthy of record. A young man, who had learnt the value of corn stalks, and the system of managing them economically, moved into a district, chiefly inhabited by quakers. One of his neighbors happened to pass his corn field in the fall when he was busy collecting the produce, and seeing him very particular in cutting off the stocks, he called out, "Friend M——, what is thee going to burn thy stalks at this time of the year for?" Mr. ———, replied, "I am not going to burn them at all, but to put them in the barn-yard." "Thee might as well save thyself the trouble: they will never make manure, and if thee put them in thy yard, thee will never be able to get them out again. Thee might as well put so many faggots in the barn-yard; thee had better burn them, and manure thy land with the ashes." Such was the opinion and the advice of an old man, to a young one just setting out in life. Mr. ———, who, by the

way, has earned for himself the reputation of a very good farmer, of course, paid no attention to his neighbors advice, but put the stalks in the yards, as wanted, and in the spring hauled out valuable manure in large quantities. The same neighbor happened to pass by when he was hauling out the manure, and when Mr. ———, called his attention to the fact, that corn stalk manure could be hauled out of a yard, he was met with the assertions that it could never be spread, and that it was good for nothing.

You may think these anecdotes trifling and ridiculous, and so should I, did I not know how wide-spread and inveterate are the prejudices against any innovation on established customs—and did I not wish to meet at the threshold, similar objections, which may present themselves to the minds of many readers.

But I find that I have only explained in part, the means of making barn-yard manure, without sufficiently explaining the way of doing it. It is accomplished by keeping the stock of the farm, as much as possible in the yards. At all seasons, winter and summer, the horses are kept in their yard, which is littered with straw, stubble stuff, chaff, corn-cobs, &c. In winter, they are fed with hay, grain, turnips, and sometimes carrots. In summer, a supply of green food is always given; the grasses, luzerne, rye, corn, millet, &c, furnish it. Being loose in the yard, the droppings are mixed with, and absorbed by the vegetable substances with which they come in contact; and by their tramping, the mass is prevented from fermenting too much, and at the same time reduced nearly to the condition of short muck. A constant supply of water is provided in the yards. The horses, when they come in warm, are confined to the stable for a time, to get cool, before being allowed free access to it. They are also fed with grain in the stable—and sometimes, in very stormy, wet weather, in winter, they are kept up—at all other times, they generally are, and always ought to be, loose in the yard. The cows are allowed to graze a few hours daily, for a few months in the year—they are yarded every afternoon, and kept in their yard all night, having a supply of green food, as above for the horses, given to them night and morning. The rest of the year they are confined to the yard, with turnips and corn, fodder, and occasionally, potatoes, nubbins, a little corn meal, &c. by way of variety—the corn stalks, as before mentioned furnishing litter. The cows are chained to bins in the yard, when being fed or milked; at all other times, they are loose in the yard, never being put into a stable unless it be for a week or so, at the time of calving, and then more far the sake of quiet, and to keep the calf out of harm's way, than any thing else. It may be well to mention incidentally, that the yards are provided with plenty of good shed room, that they are well sheltered from the prevailing winds, and have a favorable exposure. The pigs, of which only a few are kept, have the range of both the yards, and are fed with swill from the house and dairy, and in winter, with a few turnips. In summer, they come up to the rack about as regularly as the horses and cows, for their portion of green food. I neglected stating in the proper place, that the horse stable is always kept well littered, and the manure made in it is put into the yard, from time to time, where it is spread about.

Now, I believe, that if any farmer will pursue this plan steadily, and make good provision for it, he may make manure enough to improve a farm to the highest pitch, as far as manure alone is concerned;

and not only do so, but find the amount of disposable produce greater, under such a system, than under that which usually prevails.

Having said so much about making manure, it may not be amiss to add a few words about applying it. Convenience, experience and reason, point to top-dressing on young grass as the best mode—above all, where land is already in good condition. It is convenient so to apply it, because it need not interfere with timely sowing and planting, which it generally does, when applied to wheat, corn, turnips, &c. It may be hauled out and spread in the fall and spring, when sowing and planting is interrupted or finished. My own observation teaches me, that wonderful crops of grass and hay are produced by this application of manure. And one of the most intelligent farmers in England told me, that his experience showed that manure applied to wheat, on land in good condition, was more apt to injure, than benefit the crop, particularly in its quality. This farmer, for a period of about forty years, has usually taken wheat of the very best quality to market—and, what may surprize some farmers, he told me that for about thirty years, he had not changed his seed. When I saw his crops, they were estimated at from thirty-five to forty bushels per acre, although the season was not a favorable one. His soil is not considered a good wheat soil. If the manner in which nature applies all animal, and a large portion of vegetable matter to the soil, be observed, it will not, I hope, be thought unreasonable in man so to apply it. A friend of mine calls top-dressing, "the tea-system"—supposing the virtues of manure to be conveyed to the plant in infusion, or solution.

Some farmers may think that cows kept as above described, will not give much milk and butter. I can assure them that they do, and of excellent quality, with good dairy management; and that they keep in good condition too.

Some time since, I saw on the farm of one of my friends, what I thought to be an *improved practice*. He usually pays about twenty-five cents an acre more than any of his neighbors, for mowing grass for hay. He is very particular, in laying down his lands to grass, to have them evenly ploughed, harrowed and rolled—and every spring, he rolls his mowing ground with heavy iron rollers of large diameter —and stones or other obstructions to the scythe are removed. In mowing, he insists on narrow swaths being taken, and the scythe being kept close to the ground, and well pointed in and out. You will think this not the way for the mowers to make fast work. Hence the necessity for the extra twenty-five cents. My friend thinks, that for every cent extra, that he pays for mowing, he receives about ten cents of value, in the increased weight of hay. He contends that the lowest inch of grass in his fields, yields as great a weight of hay as five or six inches at the top—and he has the satisfaction of having his work well done. I have seen on his farm, a field of forty acres, so neatly mowed, that it was exceedingly difficult to find which way the mowers had worked. Now, this, I think, an improvement on the practice, so almost universal, of mowing in such a manner, as to leave each swath, and each stroke of the scythe visible—I had almost said to a passenger on a rail road car, going at the rate of fifteen miles an hour,

P. H.

The Mount Vernon Farmer.

The fame of Gen. Washington as a soldier and statesman is universally known and highly admired by all who appreciate talents, worth, and love of country; but his character as a farmer was less known in his day, and his memory in this respect, is not venerated according to its desert. Possessing ample means, and the most ardent love of rural life, he was one of the first experimental and practical farmers in Virginia. His estate at Mount Vernon consisted of 10,000 acres of land, in one body, equal to about 15 square miles. It was divided into farms of convenient size, at the distance of 2, 3, 4 and 5 miles from his mansion house. These farms he visited every day in pleasant weather, and was constantly engaged in making experiments for the improvement of agriculture.

Some idea of the extent of his farming operations may be formed from the following fact: in 1787, he had 500 acres in grass—sowed 600 bushels of oats—700 acres with wheat, and prepared as much more for corn, barley, potatoes, beans, peas, &c., and 150 with turnips. His stock consisted of 140 horses, 112 cows, 235 working oxen, heifers and steers, and 500 sheep. He constantly employed 250 hands, and kept 24 ploughs going during the whole year, when the earth and the state of the weather would permit. In 1786, he slaughtered 150 hogs, weighing 18,560 pounds, for the use of his family, besides provisions for his negroes.

Proper Form and Shape of Cattle.

[FROM THE LIBRARY OF USEFUL KNOWLEDGE.]

Whatever be the breed, there are certain conformations which are indispensable to the thriving and value of the ox and cow. When we have a clear idea of these we shall be able more clearly to form an accurate judgment of the breeds of the different countries as they pass before us. If there is one part of the frame, the form of which, more than any of the other, renders the animal valuable, it is the chest. There must be room enough for the heart to beat, and the lungs to play, or sufficient blood for the purposes of nutriment and of strength will not be circulated; nor will it thoroughly undergo that vital change which is essential to the proper discharge of every function. We look, therefore, first of all to the wide and deep girth about the heart and lungs. We must have both: the proportion in which the one or the other may preponderate, will depend on the service we require for the animal; we can excuse a slight degree of flatness of the sides, for he will be lighter in the forehead and more active; but the grazier must have width as well as depth. And not only about the heart and legs, but over the whole ribs, must we have length and roundness; the *hooped* as well as the deep barrel is essential; there must be room for the materials from which the blood is to be provided. The beast should also be ribbed home; there should be little space between the ribs and the hips. This seems to be indispensable to the ox, as it regards a good healthy constitution, and a prapensity to fatten; but a largeness or dropping of the belly is excusable in the cow, or rather, notwith-

standing it diminishes the beauty of the animal, it leaves room for the udder; and if is also accompanied by swelling milk veins, it generally indicates her value for dairy.

The roundness and depth of the barrel, however, is most advantageous in proportion as it is found below the point of the elbow, more than between the shoulders and the legs; or low down between the the legs, rather than upwards towards the withers, for it diminishes the heaviness before, and the comparative bulk of the coarse parts of the animal, which is always a very great consideration.

The loins should be wide; of this there can be no doubt, for they are the prime parts; they should seem to extend far from the back; and although the belly should not hang down the flanks should be round and deep. Of the hips, it is superfluous to say, that without being ragged, they should be large; round, rather than wide and presenting, when handled, plenty of muscle and fat. The thighs should be round and long, close together when viewed from behind, and the farther down they continue to be so the better. The legs short, varying like other parts, according to the destination of the animal; and decidedly short, for there is an almost inseparable connection between length of leg and lightness of carcase, and shortness of leg and propensity to fatten. The bones of the legs, and they only being taken as a sample of the bony structure of the frame generally, should be small but not too small—small enough for the well known accomplishment —a propensity to fatten—small enough to please the consumer; but not so small as to indicate delicacy of constitution, and liability to disease.

Last of all, the hide—the most important thing of all—thin, but not so thin as to indicate that the animal can endure no hardship; moveable, mellow, but not too loose, and particularly well covered with fine soft hair.

Introduction of Turnip Husbandry in England

[FROM THE FARMER'S REGISTER.]

A correspondent of the Boston Courier, speaking of the introduction of the sugar beet int this country, makes some forcible remarks on the prodigious impulse which the prosperity of a nation may receceive by the introduction of a single new plant, which he illustrates by the following historical fact:—

In an early part of the reign of George the First, the culture of the turnip was limited in England to a few gardens, as that of the beet now is with us, and used almost exclusively for culinary purposes. That monarch in one of his visits to his electorate of Hanover, was attended by his Secretary of State, Lord Townsend; whilst residing there, this nobleman was struck by the appearance of extensive fields devoted to the culture of turnips, as food for cattle and sheep; impressed with the belief that this method might be introduced with advantage into his own country, he, before leaving Germany, took care to provide himself with seed, and on his return, earnestly recommended to his tenants a practice, which in Hanover, had been found to produce the most favorable results. His wishes were attended to, and the experiment surpassed in success, his most sanguine expectations. The field cul-

ture of the turnip spread rapidly through the county of Norfolk, which from that epoch, dates its high reputation as an agricultural district. Lands which rented for one or two shillings an acre, soon brought them fifteen or twenty, and steril warrens, on which were only to be seen a few half-starved rabbits, were reclaimed and are now covered with rich harvests of grain. Colquhoun, in his statistical researches, computes that the annual value of a crop of turnips *in Norfolk* alone, amounts to not less than fifteen millions sterling! When it is considered that this root has been the means of bringing under culture, lands, which, without it, must have remained valueless; that it leaves the soil in a condition to ensure a good crop of grain or grass, and that the latter is a good preparation for wheat, we may safely consider the benefits resulting to England from the turnip culture as incalculable. If it was now asked, says Colquhoun, who was the man, in modern times, who had rendered England the most signal service, no one should hesitate to say, that it was the nobleman, whom shallow courtiers nicknamed, in derision, "Turnip Townsend." In half a century the turnips spread over the three kingdoms, and their yearly value, at this day, says the same author, is not inferior, in amount to the interest of the national debt!!!

General Remarks on the Improvements and Prospects of British Agriculture.

[FROM THE NEW-YORK OBSERVER.]

Extract from Dr. Humphrey's Letters from England.

I have spoken already, in general terms, with a little of that enthusiasm, perhaps, which first impressions are apt to beget, of the moral beauties and high cultivation of England, and parts of Scotland. A glance, in July or August, from a few of the thousand eminences which invite your steps, is sufficient to convince you, that the prodigious agricultural resources of the country are developed with extraordinary industry, skill and success. But these enchanting glimpses are too rapid and indefinite to afford any satisfactory data, from which to calculate the gross produce of the island. You want to sit down in your closet, with such statistics as may be gleaned from the reports of parliamentary committees and other authentic documents, and by the help of these, to make out a condensed abstract, embracing all the items which go to swell the vast aggregate of British Agricultural production. For brevity's sake, I shall include what I have to say of the agriculture of Scotland, under the present general head, although most of the estimates will have more special reference to England and Wales.

It is the opinion of competent judges, that the advances made in the Agriculture of Great Britain during the last seventy or eighty years, are scarcely exceeded by the improvement and extension of its manufactures, within the same period; and that to these advances, no other old settled country furnishes any parallel. That they have been very rapid, indeed, the following figures and comparisons abundantly show. In 1760 the total growth of all kinds of grain in England and Wales, was about 120,000,000 of bushels. To this should be added, perhaps 30,000,000, for Scotland—making a grand total of 170,000,000. In

1835, the quantity in both kingdoms, could not have been less than 340,000,000 of bushels. In 1755 the population of the whole island, did not much, if any, exceed 7,500,000. In 1831 it had risen to 16,525,180, being an increase of 9,000,000 or 120 per cent! Now, the improvements in agriculture, having more than kept pace with this prodigious increase of demand for its various productions; for it is agreed on all hands, that the 16,500,000, or rather the 17,500,000, (for more than a million have been added since 1831,) are much fuller fed, and on provisions of a far better quality, than the 7,500,000 were, in 1755. Nor is Great Britain indebted at all, at present, to foreign markets for her supplies. Since 1832, she has imported no grain, worth mentioning, and till within the last six months, prices have been so exceedingly depressed, as to call forth loud complaints from the whole agricultural interest of the country. England is, at this moment, so far from wanting any of our bread-stuffs, if we had them to export, that she has been supplying us all winter liberally from her own granaries, and according to the latest advices, she has still bread enough and to spare. Again, it is estimated by British writers, of high authority, that the subsistence of 9,000,000 of people, costs, in raw produce, no less than £72,000,000, or £8 for each individual per annum. According to this estimate, the annual product of this great branch of national industry, is $350,000,000 more at present, than it was in 1755; which is more than twice the value of the whole cotton manufacture of the country, in 1831. Now, if it costs $350,000,000 to feed the increased population of 9,000,000, then to feed the present population of 17,500,000, must cost near $700,000,000! What an amazing agricultural product for so small a territory! And yet it is the opinion of practical men of the highest respectability in England, that the raw produce of the Island might be well nigh doubled, without any greater proportional expense being incurred in its production. That is to say, 35,000,000,000 of people might draw their subsistence from that one little speck in the ocean! Now *we* have a territory more than fifteen times as large as the island of Great Britain; and what should hinder it, when it comes to be brought under no higher cultivation than some parts of England and Scotland, from sustaining a population of *five* or *six* hundred millions of people? This would give to Virginia something like *thirty* millions—to Illinois and Missouri about the same number, each—to New-York near *twenty-five* millions, and so in proportion to the other states. I am aware that this estimate will be regarded as extremely visionary and incredible, by many of your readers; but not more so than it would have been thought in the middle of the last century, that England, Scotland and Wales could ever be made to sustain thirty five, or even thirty millions.

Among the causes which have more than doubled the agricultural produce of Great Britain, within the period just alluded to, may be mentioned the enclosing of six or seven millions of acres of commons and common fields, by which their annual product has been increased, in many cases more than tenfold—the cultivation of heaths and other waste lands—the redeeming of extensive and inexhaustibly rich fens, from the possession of aquatic birds and animals—the great improvement in agricultural implements—the furrow draining of clay, and other cold and stiff soils—the better rotation of crops—the extensive introduction of turnips and clover—the immense increase of common manure, and the introduction of one at least, whose extraordinary nu-

tritive qualities have but recently been discovered. Next to wheat, the turnip crop, which forty years ago was hardly worth mentioning, is now more valuable than any other, both to landlords and tenants. It is used chiefly in feeding and fattening cattle and sheep: and while immense numbers of both are kept in the most healthy and thriving condition upon this vegetable, one species of which, the ruta baga, has lately been introduced, and is extensively productive, the lands are greatly enriched, and soon prepared for any other crop, which the farmer may find most profitable in his system of rotation. Clover, too, is doing much to enrich the soil of England and Scotland, and to reward the labors of those who moisten it with the sweat of their brows. It is surprising to see, to what an extent the light sandy lands of England have already been redeemed from comparative sterility under this cultivation, and are now sowed with the finest wheat. The process is still going on, and bids fair to proceed as long as there remain any such lands to be reclaimed and enriched. Indeed, who can tell how much the cultivation of the turnip may ultimately add to the wealth, and help to sustain the population of Britain. According to an estimate which I have lately seen, it is now worth *many millions* sterling, per annum, to the single county of Norfolk. *Carrots*, also, are found to be a very profitable crop, in some parts of England, and the farmers are turning their attention to the cultivation of this very nutritious esculent, with increasing interest and advantage. Among the several kinds of manure which have long been in high repute, lime and marl are inexhaustible; particularly the former, which the low price of coal brings at a cheap rate. On some soils, and near the kilns, it is used in great quantities. I have seen fields covered with it, just as ours are with barn manure; and when it is spread, the ground appears, at a little distance, as if it were covered with snow.

But the richest and most profitable kind of dressing which has yet been tried, and which is a new source of agricultural wealth to Great Britain, is *bone manure*. It began first to be used, on a large scale, in Yorkshire and Lincolnshire, where its influence has been all but miraculous! Extensive tracts of country, which a few years ago were mere wastes, occupied by rabit-warrens, have been converted into some of the finest and best managed farms in England. This signal improvement, though it did not begin, has been carried to its present perfection, by the use of the manure just mentioned. Since bone dust has come into general use, the turnip crop has been increased in many instances tenfold, and in few less than *four* or *five* fold, and the effect has been equally surprising upon the succeeding crops of grain, on the same land. This is the testimony of practical men, well acquainted with all the circumstances, and they have no doubt that the soil will go on progressively improving, and requiring a less quantity of bones, annually, from its increased fertility and power. It answers best on light soils. A single farmer in Lincolnshire, is said to have generally about 600 acres dressed, almost entirely with bone manure, furnishing a vast supply of food for cattle, and of common manure for other lands, and is fitting those on which it is sown, for bearing the most luxuriant crops of wheat and barley.

In Scotland, the use of bone manure is still more recent, but scarcely less productive. In the Lothians, in Berwickshire, and in fact every where, it is working wonders. Being so light and easily transported, compared with any other kind of manure, many a rugged and hilly

tract is fertilized by it, which must otherwise have remained in a state of nature. To pulverize the bones, mills are constructed in the vicinity of all the large towns, and besides what their own markets furnish, large quantities of bone dust are imported by the Scotch farmers.

I am almost ashamed to offer your readers this brief and meagre sketch of the present state of British agriculture; but neither time nor space will permit me to enlarge. There are limits, no doubt, beyond which improvements in cultivating the soil cannot be carried. But there is no reason to think, that these limits have yet been approached, even in the most productive districts of England and Scotland—for the science of Agriculture never advanced more rapidly than it has done within the last few years; or rather I should say, were I entitled to speak with any authority on the subject, it seems to be almost in its infancy. Who that looks at the astonishing improvements of the last fifty years, both in the science and the art of husbandry—who that recollects how lately the potato, that most rich, nutritious and productive of our farinaceous esculents has been brought into general use, who that considers what inexhaustible sources of nutrition and fertility and wealth, the turnip and other green crops have so recently become in Britain, will undertake to say, that other vegetables, still more nutritious and productive, may not yet be introduced and brought under general cultivation? Who can tell, what new substances scientific and practical agriculturists may yet find, possessing far higher fertilizing virtues, than any now in use—or what combinations and mixtures chemistry may furnish, so cheap and so abundant, as to put a new aspect of fertility upon lands already most productive? Who, in looking at the best acre in all England, would venture to say, that it can never, by any possible improvements and discoveries, be made more productive of human sustenance than it now is? Who knows, but that a hundred, or a thousand years hence, it may yield four fold? Who, in short, can even conjecture what amazing undeveloped agricultural resources yet lie hidden in lands, which have hitherto been regarded as scarcely worth tilling at all? * * *

Salt Marshes and Malaria. The Wheat Crop.

[FROM THE FARMER'S REGISTER.]

I reside on a salt water river, from which several coves make into my lands. At their heads are salt marshes, which are met by fresh water branches. I have for some time entertained the opinion, derived perhaps, from the speculations in relation to the malaria from the Pontine marshes, that those grounds in their present state, were the sources of our autumnal fevers. I have been greatly desirous to separate the salt from the fresh waters, so that they should only meet at the sluice.

Last year I succeeded in shutting the tide out from one of my marshes, and kept it flooded during the winter with fresh water, to correct the salt with which it had been saturated. After treating it in the same way, next winter, I intend to sow it in herd's grass on the sod, without resorting to the plough or harrow. Herd's grass was strongly recommended as suitable for the wet marshy ravines of lower Virginia, by one of your correspondents in the first volume of the

Farmers' Register, page 486, I have understood, that on some of the Delaware marshes, which had been found too wet and springy for other grasses, herd's grass had not only taken well, but had given firmness and consistency to the soil. In a former volume of the Register, I had noted with much interest, the experiment of Mr. H. Carter, and greatly regret to see by a communication from him, in the number for May, that he has been obliged to abandon the experiment, which, in its early stages, promised permanent profit. It appears to me that the cultivation of Mr. Carter's reclaimed grounds in corn, for seven successive years, by exposing the soil to the sun and air, was calculated to produce the catastrophe he has experienced. I had thought if the low marshy grounds, of which I have spoken, were set in grass with strong tenacious roots, that though they might settle for a time, it would at length find its point of depression, and become firm and solid, and I must suppose that being set in grass, there would be no rotting and escape of the soil, as you, in your remarks suggest. It is a matter of great interest to our country, that the low fenny grounds, now covered with flags and bent grass, the nurseries of musquitoes and malaria should be reclaimed. My project is on a small scale, and I should abandon it with regret, and on this matter, I should be pleased to have the benefit of your experience and advice.

The present appearance affords but small hopes of good crops of wheat. Most of our farmers sowed their wheat late, to avoid the fall fly; the autumn was cold, the winter unusually severe, and vegetation of any kind made no progress until April. With the exception of a light shower, we have sustained a drought of nearly a month. A most grateful and salutary rain is falling to-day, which promises to be abundant; and as I hear no complaints of the Hessian fly, if the weather be favorable until harvest, I shall hope for half a crop in this county. Disheartening as our prospects are, they are not so appalling as the condition of the planters of the south-west. The demon of speculation did not cross the Chesapeake; though some few of our people, deluded by the romancers of the cotton-country, removed their slaves to those golden regions, which I apprehend, they will have good cause to rue.

Queen Ann's County, E. S. Maryland.

Remarks on Marsh Effluvia.

[FROM THE FARMER'S REGISTER.]

You desired, in your editorial remarks on the subject of the deleterious effects of "malaria," some light on the subject of its *modus operandi* on the health of the neighborhoods in which mill ponds are situated. I may not expect to enlighten your or the public mind on the subject; but conceiving it a matter of much importance, and having had occasion to pay a good deal of attention to the remote causes of fever, for the last ten years, I will essay a few remarks to you on the subject.

The effluvium arising from marshes, is a subtle, highly attenuated, and undefined substance, the nature of which is unknown, and by no principles of analysis or synthesis have the medical part of the community been able to arrive at any satisfactory conclusion in relation to

the thing itself. We know that certain causes produce certain effects under particular states of the atmosphere, and that the cause producing fever, is most generally owing to a principle known by the name of marsh effluvium, or miasma. Theory succeeding theory has been exploded, without arriving at anything like certainty about the substance of miasm itself.

Dr. Good, one of the ablest modern writers on the subject, in reference to miasma, after comparing the theories of the best authorities on this point, says, "the decomposition of dead matter, under the influence of certain agents, produces a miasma, that proves a common cause of fever." In speaking further of the remote causes of fevers, he continues, "the whole of these agents have not yet been explored; but so far as we are acquainted with them, they seem to be the common auxiliaries of putrefaction, as warmth, moisture, air, rest, or stagnation. Dr. Good is of opinion that the character of fever may, and is probably owing to the quantity and particular combination of marsh effluvia, with some principle in the atmosphere, and the peculiar state of the individual's health. Dr. Cullen contends, that marsh effluvium will produce no other grade of fever, except intermittents, and that all other fevers are the result of contagion. Dr. Caldwell's opinion on this subject is, "we have long thought it probable, that the miasmata which produce yellow fever, differ from those that produce intermittents, somewhat as the nitric does from the nitrous, and the sulphuric from the sulphurous acids. We know not on what other ground to attempt an explanation of the difference of their effects."

My own experience has led me irresistibly to the belief, that all varieties of fever may be produced from the same cause (marsh effluvia,) and that the particular grade is owing to the peculiar state of the health, the temperature of the atmosphere, and the quantity of miasm afloat in the air.

But to recur particularly to the case under consideration. I have been a practitioner of medicine in this neighborhood for the last eight or ten years, and live near a small creek, on which, when I first settled, there was no mill; but four years subsequently, a mill was erected, with a large pond. Previously to the erection of the mill, there had not been a case of fever occurring on the creek. The fall following there were three families sick; nearly all the members of each family had fever. The disease assumed both the character of intermittent and continued fever. Two of the families have removed, chiefly on account of their health. What is remarkable, the miller, with a large family, have all escaped, nor has there been any febrile disease below, or immediately opposite the pond; all the diseases occurring about, or above the head of the pond. One of the families alluded to lives two or three miles above, and another near the creek, and so ne distance above. There have been many other cases of fever in the neigborhood alluded to, but I have only cited those particularly which I think afford a striking example, in illustration of your position in relation to large ponds on small streams.

I account for the effect, solely on the grounds of the "sobbing" from the mill-pond, of the contiguous *clay*, and the decomposition of organized vegetable matter. I have seen many other cases in similar situations, which have generally been above the pond.

I remarked above, that miasm might arise from the effects of stagnant water on clay, under certain circumstances; and believe the po-

sition as susceptible of proof as any proposition in Euclid. I saw a family suffer severely from fever a few years past, when no other cause could have appeared to produce it, except that an unfinished cellar under the house had been about half filled with water, which had been allowed to remain for some time. Nearly every member of the family was made sick by it, and these constituting the only cases in the neighborhood. The accumulation of water had been the result of rain, the habitation having had no underpinning. The water had nothing to act on, in this case, except clay. Another instance in which a family took fever, I attributed to a puddle of water in the yard, occasioned by the soil being removed for water. In both of the above instances, liability to fever was removed by filling up the sinks with earth. Much more might be said in sustaining my position in reference to the exhalation of miasm, from clay lands, under certain circumstances of heat and moisture, but I hope the above will suffice.

R. B. J****.

Halifax Co., Va., May 23d, 1837.

Trenching on Hill-Sides.

[FROM THE FARMER'S REGISTER.]

In looking over my last number of your Register, I find a piece written by Mr. Edmunds of Charlotte, entitled "Plan of a drained mill-pond on Wardsfork creek—Hill-side ditches, &c."

In regard to Mr. Edmunds' latter subject, trenching on hill-sides, much has been done and said in relation to it, and a great contrariety of opinion exists, in regard to the utility of trenching at all. I have, for the last eight or ten years, followed up the most approved plan of trenching, and am constrained to confess, that I believe more injury has resulted to my farm than good, from the use of them, as heretofore constructed.

Finding the usual method would not do, I determined to use the trenches as rarely as possible, to give them as much fall as I might, and shorten them in length, whenever practicable, and make an embankment of clay, instead of soil. To obviate the deleterious effects of the water in shortening my trenches, I sow herd's grass in the ravines, along which the water passes, to prevent rubbing from the water ejected from the furrows or trenches. We gain an additional advantage in a setting of grass, as proposed in a crop of hay, which is generally very good.

A very great objection to the establishment of the water trench has been with me, the want of permanency in the embankment, attributable to the cutting through of moles. Whenever an embankment is perforated by a mole, (which is no uncommon thing,) it is immediately broken, and a gully is the necessary consequence. To prevent which, and to bring into requisition the soil which has always formed the banks of our trenches, I throw the soil below, plough the clay, and by hoeing out in the usual way, have the embankment of clay instead of soil, which embankment proves entirely impervious to the mole, and in fact, to all such impressions from similar causes. The trouble of removing the soil is greater in theory than practice, for, after ploughing efficiently, it may be thrown below the trench with spades, or dragged with hoes, with much less labor than we would previously anticipate.

Mr. Edmunds goes on to say, in speaking of the trenches, "they are likewise frequently broken by collections of water in the intermediate spaces between the conductors. In these intermediate spaces, the water collects and forms sluices, and runs into the ditches and fills them with sand, and breaks over." I would obviate this difficulty in the construction of the trench. I make the above remarks, hoping the suggestions contained in them, may possibly lead some to practical improvement in the art of hill-side trenching.

R. B. J.

Halifax Co., Va., May 23d, 1337.

Use of Garget in Diseases of Sheep.

[FROM THE MAINE FARMER.]

Mr. Holmes.—I consider Sheep Husbandry next in importance to the raising wheat in the best manner in the State. It never will do most farms not to raise our own bread and depend on the sale of wool and sheep to procure the necessary article, but make the sheep conduce to the raising bread and profit, by both breadstuffs and wool, together with the sale of so many sheep from the flock as can be spared. Nothing that relates to the health of that useful animal, the sheep, can be unimportant. I, therefore, will take the liberty to state one fact in regard to them. I have a buck of the best shape, which in years past, has yielded 7 lbs. of the best well washed wool. I put him out in the fall of 1835, to Amasa Tinkman, Esq. In the month of February following, he appeared diseased, and Mr. Tinkman notified me of it, and by the aid of tar put upon the nose and good keeping, he recovered and was returned in tolerable order in the spring of 1836, but with his advice not to attempt to keep him another winter, as he would certainly die.

During the last summer, he became fleshy, and I permitted him to go with my home flock, consisting of more than forty ewes. Early in February, his head became stopped up, and he had sore eyes, notwithstanding his nose was well tarred, and had been all the winter. I renewed the tar, however, and opened the skin in his neck, in what shepherds and farmers call dewlop, rather low down, and put in a piece of dry garget, and tied the wool tightly to keep it in. His health very soon became good, and has remained so for about three weeks.

ELIJAH WOOD.

Winthrop, April, 1837.

PART III.

MISCELLANEOUS INTELLIGENCE.

Opening of a vast Lead Mine in Wisconsin Territory.—The Tazewell (Illinois) Telegraph, printed at Peking, gives a very interesting account of a great excavation made for lead ore in Wisconsin Territory, under the enterprising proprietor, Mr. Kirkpatrick. It is 4 feet wide, and 6 deep, through solid rock—runs near half a mile, and has been three years completing. Its greatest depth is 60 feet, where it runs under the Pickatolik river, a tributary to the Rock, and 25 miles only above steamboat navigation. This work, which cost $10,000, was performed entirely by candle-light. The ore is inexhaustible, and some of the veins 12 feet thick. Mr. Kirkpatrick has already raised 600,000 lbs., which, at $25 a 1,000 lbs., exceeds the cost of the work by $5,000. Mr. Kirkpatrick commenced this undertaking from the suggestions of the Indians, and from his own observation, which led him to believe that the bodies of ore increased in dimensions as they increased in depth, and that the veins seemed to have a tendency to run under the water-courses in that part of the mining region.

Green Golden Pumpkin.—We noticed this Pumpkin last spring. Mr. Moses Winslow, of Westbrook, who is very liberal with good things, gave us one of these pumpkins last fall, and as we are informed that it was a good kind to keep, we kept it until within a short time. In quality, it is much superior to the common pumpkin, the meat is nearly twice as thick, and it keeps far better. They will be very good for stock, as they have a soft shell. They are excellent for pies, and we had some bread made by mixing Indian meal with this pumpkin, half and half, it improved the quality very much, and in the opinion of our "better half," it nearly doubled the quantity of bread. This bread is an excellent article for an anti-flour-eater. In the notice which we before gave of this pumpkin, it is stated that 200 lbs. were raised in 1837, from two seeds; we have only a few seeds of this pumpkin, and shall scatter them in small parcels, that those who wish may try them.— *Yankee Farmer.*

Toads.—It is a common notion that these beautiful little animals suck poison from the earth.—Now, although this opinion is a fallacy, the toad is, nevertheless, one of the most useful animals in the world to the gardener. The toad lives entirely on animal food, eats it alive, and cares not a fig for Dr. Graham. The grubs and insects which he devours, are very injurious to the young plants which are cultivated for the table. He comes out at night, when the dampness of the air is agreeable to him, and when his prey are likewise wandering abroad, committing their depredations, and watches for them as eagerly as a cat watches for mice. It is said that a few dozen of toads will destroy all the cabbage worms in a whole acre of land that is planted with cabbages, and be the means of saving the young plants from destruction.—*Boston Post.*

Cotton-seed Oil.—Among the many discoveries and improvements in the arts, of the present age, is that of manufacturing oil from the cotton-seed, as a substitute for sperm oil. The seed is first hulled, and then pressed out, and the oil is then clarified. This oil has been tested in Philadelphia and Burlington, and found to be superior, in more than one respect, to the sperm oil. It burns with a clear and brilliant light color, and is less affected by cold than the oils generally used. It has also been found to be good for paint oil. The oil bran is very valuable for feed, and is thought to be equal to the linseed bran, or oil cake. A charter has been obtained from the Legislature of New-Jersey, and it is expected that an establishment for manufacturing the oil will go into operation the ensuing summer, either in Burlington or Gloucester county.—*Farmer's Cabinet.*

East Boston Sugar Refinery.—The East Boston Sugar Refinery is said to be the most extensive establishment of the kind in the world. Some idea of its extent may be formed from the fact, that 16 tons a day are here refined. It has been in operation about 6 month; the experienced hands from Europe, and the article is said to be of the best quality.—*Weekly Messenger.*

Method of Burning Lime without Kilns.—The practice of lime-burners in Wales was formerly to burn their lime in kilns, made broad and shallow, but lately they have begun to manufacture that article without any kilns at all.

They place the limestone in large bodies, the stones not being broken small, and calcine these heaps in the same way used for preparing charcoal. To prevent the flame from bursting out at the tops and sides of these heaps, turfs and earth are placed against them, and the aperture partially closed; the heat is thus regulated and transferred through the whole mass, and notwithstanding the increased size of the stones, the whole becomes thoroughly calcined. As a proof of the superior advantage that lime burnt in these clumps has over lime burnt in the old method, a preference is always given to that burned in heaps. This practice also prevails in England and Scotland.—*Baltimore Farmer.*

Painting on Glass.—It is stated that M. Stalars, a young artist at Lisle, in France, has discovered in some ancient manuscripts, directions for painting on glass; which reveals the secrets of this art as practised in ancient times, and so long lost. He tried the method, with results which it is said are highly satisfactory.

A method of Preventing Iron and Steel from Rusting, after being newly ground.—A blacksmith who was formerly engaged in the manufacture of sickles, says, that the method he adopted to prevent his sickles from rusting after grinding, was to immerse them, for an hour, in water strongly impregnated with lime. This had the desired effect.

Machine for Sowing Clover-seed.—Every farmer knows how difficult it is to sow evenly, clover and other small seeds, especially in a cold morning, with fingers stiff with cold; that some parts are sown ten times as thick as they should be, and other parts not sown at all. Farmers also know, in consequence of the weather being windy, they are prevented from sowing eight or ten days—and thereby miss the opportunity of sowing at the most favorable time.

Now, a machine has been invented, which will only cost about $3, that will, in sowing a single bushel pay for itself, and with which seed can be sown in windy weather. With this machine, a bushel will sufficiently sow fifteen acres. Usually, our farmers sow a bushel on from eight to ten acres. Clover-seed is now from 7 to 8 dollars per bushel, so that on each bushel the machine will save from 2 to 3 dollars, and save hundreds of dollars to the county of Franklin.

Mr. Richard Woods, carpenter, at the West end of Market-street, Chambersburg, is now making the machines, and will, in a few days have them ready for sale.—*Franklin Rep.*

A Curiosity.—A gentleman from Waynesboro', Pa., stopped at one of our hotels some days since, having with him a pumpkin, which he represented as having weigned but five pounds from the vine, in the fall of 1824, nearly three years ago, and now weighs upwards of 20 pounds, with every appearance of still growing. The stem was as hard as bone, whilst every other part of the pumpkin was quite green. It has been preserved in a warm room, without receiving any moisture other than what it might derive from the atmosphere of the room.—*Westchester (Md.) Corolltonian.*

Chicago.—Chicago is an Indian word, (says the N. Y. Sunday News,) signifying "I have it not;" the French merchants who resided there, having so frequently given that answer to the Indians, when the latter asked for certain articles which they wished to purchase.

A Lady Sailor.—Mrs. Holdridge, the wife of Capt. N. Holdridge, of the Packet ship U. States, arrived on Tuesday, in that vessel—it being her *thirtieth* voyage across the Atlantic! We think she is fairly entitled to a command, having in every instance sailed as the *mate* of Capt. H. -*N. Y. Courier & Enquirer.*